



Conditions for the Development of New Ways of Working and Electronic Commerce in The Netherlands

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0. Executive Summary

This report describes the state of affairs in the Netherlands with regard to teleworking, new ways of working and electronic-commerce. It was brought about through desk research, interviews and on the basis of figures provided by Empirica. Together with the country reports of the other members of the consortium it comprises part of the ECATT study and also provides a picture of the Netherlands' position compared to other European countries. This created the framework from which the research results can be drawn.

Thanks to ICT applications, globalisation is increasing and it is becoming increasingly important to consider developments from a global perspective. The position of the Netherlands in relation to Europe takes on a new meaning when seen in context with countries such as the United States and Japan. The initial impetus to this comparison is made using case studies from the US and Japan as references in another part of the ECATT study. Unfortunately, the benchmark study on which the country report in question is based could not be carried out in a similar way in the US and Japan, so a direct comparison is not possible. In order to gain deeper insight into Europe's position compared to America and Asia, a follow-up study is recommended.

Over the past two years, due to strong liberalisation efforts, the telecommunications landscape in the Netherlands has developed to become rapidly growing and increasingly competitive. Conservative forecasts indicate growth in Internet use from 1998 to 2002 by 100% a year and an average growth in mobile telephony of 60% a year. The Netherlands now belongs to the top group in the world with respect to the quality, penetration and use of telecommunications infrastructure. It is moving in the same direction with respect to telecommunication prices, which is mainly due to the heavy competition in this market as a result of the market liberalisation and subsequent emergence of many competitors for KPN Telecom. Finally, free Internet access is starting to become more widely available in the Netherlands. Today, the Netherlands offers very good infrastructural prerequisites and preconditions for electronic commerce and new forms of work such as telework. The government recognises the increasing pressure on the (wide-band) capacity of the telecommunications infrastructure as a result of new user applications, and is monitoring it as a potential bottleneck. Although the prognoses in this area are changed and adjusted frequently, new government policy is not required. In principle, the extensive liberalisation of the telecommunications market is already sufficient. Only if pressure on the capacity persists in the long term, would the government need to take additional incentive measures in order to accelerate the development of technical innovations generated by the jumps in capacity.

Over the last few years, the Dutch government has invested heavily in raising awareness and funding programmes to improve the diffusion and penetration of electronic commerce and telework as well as initiatives to pave the Netherlands' way towards the information society. The aim is to continue with these activities which are focused on industry, public administration and the general population in the years to come. In addition, the government (in some cases in co-operation with the private sector) has announced a number of specific programmes to achieve the different set objectives.

So far, in the Netherlands the importance of the information society has been recognised, and coherent lines of action have been established at the government level which contribute to the objective of maintaining the strong position which the Netherlands has in the world in this area, and to strengthen the weaker components. With an unchanged policy and consistent implementation of the ensuing lines of action, the Netherlands should be able to realise its ambitions. It is hoped that in the not too distant future, the

Netherlands will be able to obtain the benefits from all these investments and activities and develop into one of the world's leading information societies, preferably at a higher rate than it has thus far.

In order to achieve this objective some recommendations for further procedures, such as those in the area of raising awareness and European co-operation, are presented in section 5. This section also addresses the possibilities of cross-fertilisation through the application of knowledge from the (parallel) history of teleworking and the introduction of e-commerce.

1. Introduction

Political, economic, social and other conditions are crucial to the diffusion of new ways of working and business. Governments at different levels can impact this through different means and programmes (e.g. awareness-raising initiatives, investment programmes, competitions for best-practice examples, information society initiatives), which more or less directly address the subjects of 'electronic commerce' and 'new ways of working'.

In addition, the role and policies of the growing number of telecommunications network and service providers brought about by deregulation must be considered since their policies, such as those for tariff structures and prices as well as services offered, may also have significant impacts. The same holds true for initiatives from industry, trade unions and social partners as well as industry associations.

The objectives of this country report are to:

- Identify and analyse the conditions for the development of new ways of working, especially telework and electronic commerce in the Netherlands
- Compile an overview of policy, development and economic measures and activities and assess their applicability for goal achievement and success.

The data on which the assessment of conditions for the development of new ways of working and electronic commerce are based has been gathered using desk research and interview techniques. The figures were collected and processed by Empirica and made available to the consortium. They are based on Interview surveys carried out by telephone in a representative sample of the Dutch population (general population survey) and a representative sample of Dutch companies (decision-maker survey). The Interview surveys were taken from February to May 1999. For a more detailed methodological account please refer to chapter 3.1 and the general research introduction from Empirica.

2. The Policy Background in the Netherlands

2.1 Telecommunication liberalisation, pricing, availability, etc.

The telecommunications market in the Netherlands has been liberalised since 1 July 1997. Since that time, the telecommunications network has no longer been the sole domain of KPN Telecom. In order to oversee the legal requirements for access to and use of the public telecommunications infrastructure, the government has set up a supervisory body called OPTA ('Onafhankelijke Post en Telecommunicatie Autoriteit' [Independent Post and Telecommunications Authority]). This body must also ensure that the liberalisation of the telecommunications market is balanced.

2.1.1 Liberalisation in fixed networks

From the time of liberalisation of the Dutch telecommunications market, the number of providers of speech services has increased to around 20 (December 1999). These providers are mainly active in the long distance calls market through the carrier select system ('cheaper calls using your standard telephone'). Although KPN Telecom is losing some of its market share, it is still the largest provider.

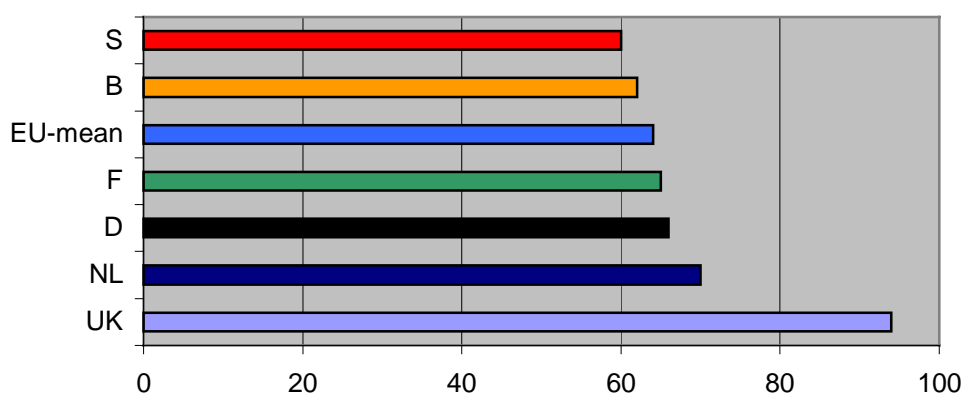
For interurban telephone calls, OPTA decided in 1998 that KPN will have to lower excessive returns in phases as this market segment has many young competitors which would suffer in the event of rates being lowered too drastically.

Local rates have also been lowered. Local telephony continues to be almost totally dominated by KPN Telecom. Only a few cable companies offer telephone services over their cable networks. In the next two years, 25% of the 6.4 million households in the Netherlands will also be able to phone locally through cable networks.

There will hardly be any growth in speech traffic on the fixed network in the next few years. Forecasts by Stratix on behalf of OPTA (March 1999) indicate less than one percent a year. Therefore, it will not be much later than mid 2000 when Internet dial-in traffic surpasses interurban speech traffic.

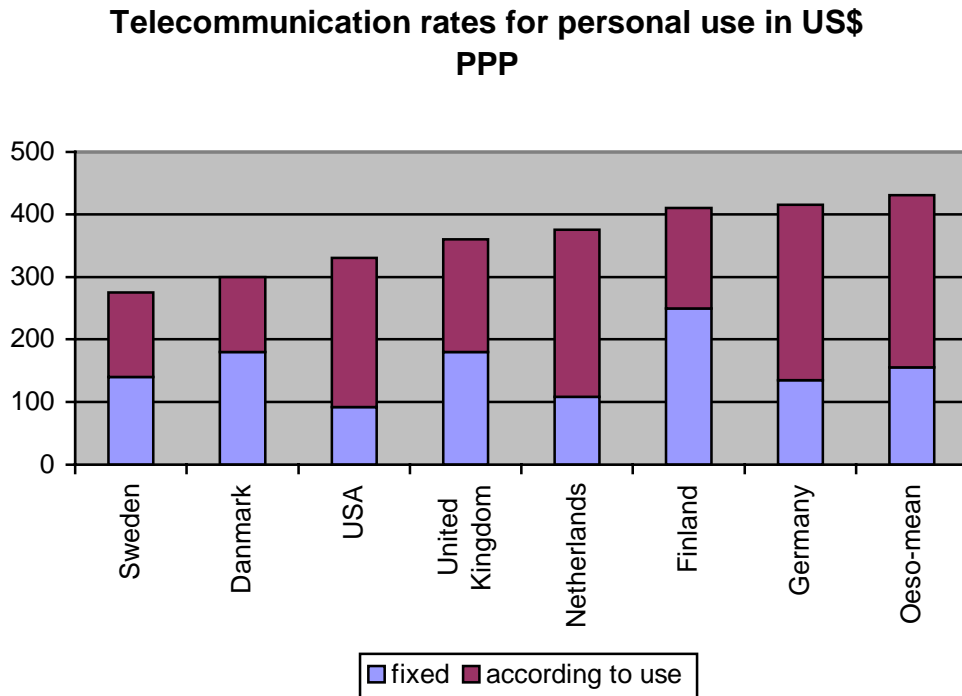
Within the EU the Netherlands is relatively advanced in freeing up the telecommunications market. See the graph below. The indicator was constructed from an unweighted sum of four sub-indicators (regulations, interconnection, competition between infrastructures and non-discrimination). This liberalisation has already led to enormous dynamics in the market. Different infrastructures can compete against one another, the supply of services is increasing, and rates are being lowered.

extent of liberalisation of telecommunications markets (100=maximum score)

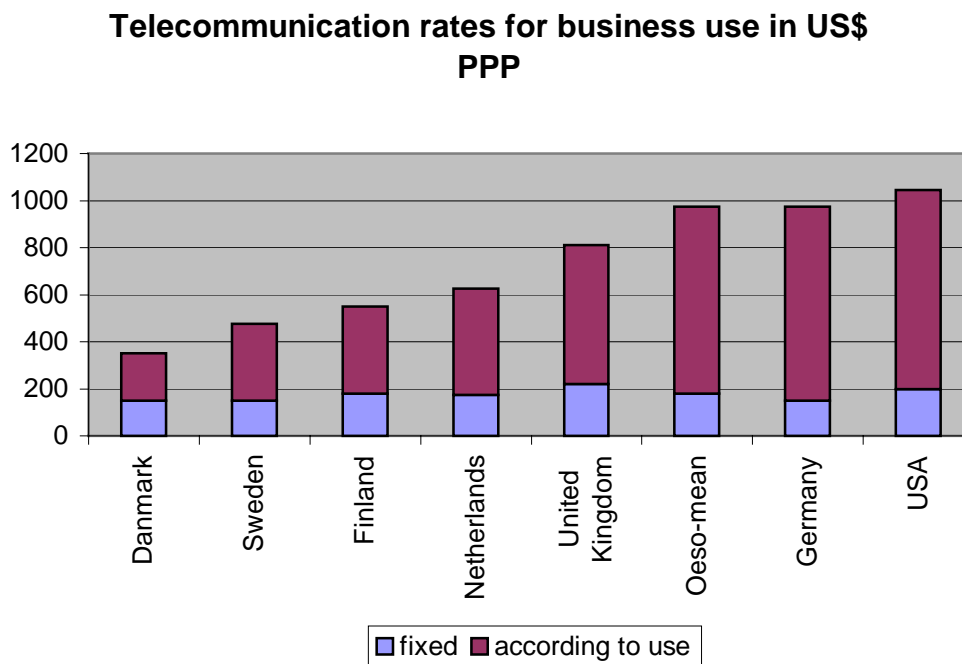


Source: de Digitale Delta

From an international perspective, the rates in the Netherlands appear as follows:



Source: de Digitale Delta



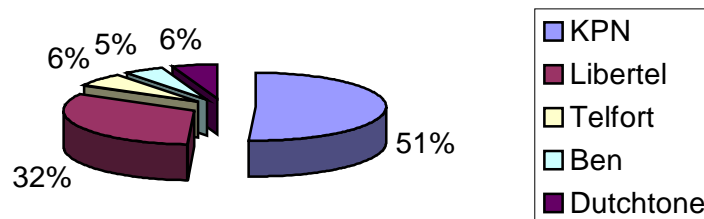
Source: de Digitale Delta

2.1.2 Liberalisation in mobile networks

In the Netherlands, mobile telephony has expanded enormously over the last few years, and has caught up from a European perspective. In October 1999, one in three people in the Netherlands had a mobile telephone. Around 3 million were sold in one year's time. This brought the total number of mobile telephones in circulation to more than 5.5 million. Rough forecasts made by Stratix on OPTA's behalf in March 1999 indicate an average growth in mobile traffic of 60% a year up to 2002.

There are 5 mobile networks in the Netherlands (GSM standard). In December 1999, KPN Telecom and Libertel together comprised more than 80 % of the Dutch market with nearly 3.5 million and more than 2 million subscribers respectively. The growth of the entire market appears to benefit mainly the smaller providers Telfort, Ben and Dutchtone, which have conducted large advertising campaigns in the battle for consumers. Thanks to the intensified competition, rates have declined and do not differ much anymore, which has a drawing in effect on the number of subscribers. The mobile telephony market is divided as follows:

**market shares in Dutch mobile telecommunications
market December 1999**



Sources: company data, newspaper reports, the Internet, annual reports

2.1.3 Internet access and pricing

As in other European countries, the market for Internet access is experiencing a growth phase. Over the last few months, the struggle for market share in this market has resulted in a large number of launches of 'free Internet providers'. These include forms of revenue sharing between telecommunications providers and Internet Service Providers which are a source of financing for the provision of 'free Internet'. The development of the supply of 'free Internet' is a huge stimulus for Internet use in the Netherlands. The introduction of free Internet on a large scale exploded in the autumn of 1999 with a mailing from Postbank to all of its clients offering 'free Internet' (Freeler). Thanks in part to this mailing, Internet use is experiencing an enormous growth. Forecasts drawn up for OPTA by Stratix in March 1999 indicate an average growth in Internet use of 100% a year for the period up to 2002. In spite of the high growth percentage, this assumption is more likely to be cautious than an overestimate, as was the case earlier with the expected growth of mobile telephone traffic. The growth of mobile telephony and Internet use (through free access) grew more in 1999 than the researchers had predicted.

In the Netherlands, access to the Internet currently takes place mainly by means of connections with Internet Service Providers through KPN Telecom's fixed public speech telephony network. Other forms of Internet access such as cable and xDSL still play a limited role at the moment. However, the demand for capacity is growing excessively, precisely because of the increasing mobile traffic and Internet traffic. Although the Netherlands has a very dense cable network which could potentially be used as a fully fledged communications infrastructure, relatively speaking, little use is being made of it. There are initiatives under development, such as the initiative by a number of Dutch cable companies to provide the cable network for national telephone and Internet services, which will increase the capacity of the infrastructure. This development is particularly important for other multimedia applications.

The unpredictability of the growth of demand for capacity derives partly from the inability to effectively oversee the capacity consequences of new user options such as video on demand, or image-related applications in (third generation) mobile telephony. Therefore, it is very difficult for market parties to effectively anticipate this growth. Thanks to the application of technical innovations, new options are able to make improvements in capacity. In addition, new infrastructure is being created. For example, in order to deal with Internet traffic as efficiently as possible, the idea was developed to create a separate network for this purpose. KPN and other telecom providers recently completed the construction of this network.

2.1.4 Summary

Since its liberalisation, the Dutch telecommunications market has developed enormously. KPN Telecom's monopoly position has disappeared following the emergence of competitors, which has had positive effects on pricing in both fixed and mobile telecommunications. Thanks in part to free Internet, access to the Internet is becoming easier, resulting in an enormous growth in the number of Internet connections. The extent of liberalisation and the high cable density in the Netherlands form a favourable climate for electronic commerce and new forms of work such as telework. The government stimulates innovation and investments in the telecommunications infrastructure by safeguarding competition on the telecommunications market.

However, because of the increasing pressure on capacity through excessive growth of Internet and mobile traffic and through the new user options for which capacity consequences cannot be effectively surveyed, this remains a point for attention. Just as the insufficient use of the possibilities offered by cable, this is a factor which may hinder the developments.

Sources:

De Digitale Delta, Nederland oNLine, a publication of the Ministries of Economic Affairs, the Interior and Kingdom Relations, Finance, Justice, Education, Culture and Science, and Transport and Public Works, 1999.

Bundeling openbare versies documenten met betrekking tot rapportage door Stratix over schaarste in het telecommunicatienet van KPN Telecom en over het onderzoek naar interconnectie schaarste bij KPN Telecom, Opta, Den Haag, 10 mei 1999. [Collection public version documents in relation to report by Stratix on shortage in the telecommunicationnet of KPN Telecom and on research on interconnectivity shortage of KPN Telecom, Opta, The Hague, may 10th, 1999.]

www.opta.nl

2.2 Specific telework and e-commerce policies

2.2.1 Telework and new ways of work

Particularly during the first half of the nineties, the Dutch government was very active in the promotion and stimulation of teleworking. However, attention quickly broadened to the policy concerning Information and Communication Technology. ICT policy has been a topic for the Dutch government since 1994. See also information society initiatives, section 2.2.3

Policies

In 1991, as a result of the 'Tweede Structuurschema Verkeer en Vervoer' [Second Structural Plan for Traffic and Transport] of the Ministry of Transport and Public Works, the government started to actively promote the topic of teleworking. The 'Platform Telewerken Nederland' [Netherlands Platform for Teleworking] was created by the Ministries of Transport and Public Works, and Economic Affairs, in co-operation with several market parties in order to stimulate teleworking in the Netherlands by bringing the possibilities and advantages to the attention of the government, employers and employees. In addition, telework projects were developed particularly within the government, at departmental, provincial and municipal levels. The main themes of the promotion of teleworking were the congestion issue and other mobility issues. Over the last few years there was a gradual shift towards a more integrated approach to teleworking, through which the net asset value for organisations themselves was brought into the limelight. In the mid nineties, it appeared that the government's follow-up to its initiatives was much less than expected. The government subsequently broadened its policy and started making subsidies available in 1994 in the broader perspective of information policy. Concrete projects to stimulate the use of information and communication technology were submitted through the 'Nationaal Actieprogramma Electronische Snelwegen' [National Action Programme for Information Superhighways] (see also section 2.2.3). 'Stichting Nederlands Telewerkforum' [the Dutch Telework Forum], the successor to 'Platform Telewerken Nederland', continued its awareness-raising activities and still does so today.

Over the last few years, there has been a clear shift towards a more integrated approach to teleworking: improvement of operational processes by means of far-reaching flexibility with regard to time and place, partly through the innovative efforts of ICT and the accompanying management of these operational processes (operational process innovation). Mobility aspects are no longer decisive arguments. An argument used with increasing frequency is to introduce teleworking in order to keep good people and also to attract new personnel if a certain expertise is becoming scarce in the surrounding environment. This is not so much due to the government policy, but rather due to the scarcity on the labour market. Employers command teleworking as a secondary condition of employment.

Besides the increase in the number of telework projects (for additional information see: The main findings for the Netherlands, section 3), there is a trend towards teleworking being arranged less and less formally; employees just do it. The wide availability of high-quality technology (PCs, mobile telephones, etc.) as well as the less hierarchical employment relationships play an important role in this.

Teleworking is also stimulated through tax benefits for employers who facilitate teleworking by employees. There are two common opinions in the Netherlands upon this. One defends the statement that tax benefits played a role in the growth of teleworking.

The other that tax benefits didn't contribute to the growth of teleworking. There are no research results to level this controversy.

At the end of 1998, the Council for Transport and Public Works ascertained that the implementation of the measures proposed at the time had stopped short because of the low level of political and social acceptance. The development of policy proposals with regard to teleworking, teleshopping, telelearning and telemeeting in particular lagged behind. According to the Council, forms of tele'action' are still in their infancy because the business community still has too many preconceptions with regard to similar telematics applications and the positive consequences are not sufficiently known. Furthermore, the technical possibilities are not used sufficiently. The Council considers the stimulation of telematics applications in the business community to be an important task for the government.

Significant initiatives

A number of notable initiatives in the area of teleworking and new ways of working are described below. In keeping with Dutch tradition, a number of these initiatives involve a collaboration between the government and the private sector. The initiatives vary from awareness-raising and research to concrete implementation projects.

Interdepartmental feasibility study on operational process innovation

A large feasibility study was conducted in 1998 and 1999, in which the possibilities of operational process innovation were studied in 8 departments (<http://www.minvenw.nl/projects/ihv>). Following the positive results of the study, a number of proposals are currently being developed in which operational process innovation in primary policy plays the key role. This study was financed by the 'Nationaal ActieProgramma Elektronische Snelwegen', a subsidy scheme for projects that contribute to the stimulation of ICT use.

In addition there is a continuation of initiatives from the Ministry of Transport and Public Works which also addresses the broadening from teleworking towards new ways of working. In 1998, in order to promote the implementation of flexible working, a new detailed handbook was published on flexible working, which is also available electronically at <http://www.minvenw.nl/telewerken>.

File Verdunningsplan [Traffic Jam Reduction Plan]

Further to the Ministry of Economic Affairs' ICT document, MediaPlaza, the demonstration centre for the information superhighway, came up with the idea in 1998 to link the liberation of the information superhighway to the solution of social problems. One of these is the traffic jam problem, which can be addressed with the use of teleworking; MediaPlaza is launching the Fileverdunningsplan, 'through rush hour with your mouse'. The essence of the Fileverdunningsplan was to let 25,000 people who travel by car between the cities of Amsterdam, Utrecht and The Hague work at home in exchange for a rapid Internet connection and a multimedia PC. They were not allowed to step into their cars until after 9.30 hours. This could reduce the usual morning rush hour on the A4, A2 and A12 motorways to its level during the holiday period. Financing for the implementation of the project would have to be realised collectively by the government and the business community. The estimated total costs are NLG 450 million, of which 250 million from the government and 200 million from the business community. Media Plaza asked the 'TelewerkForum' to further define the plan for the follow-up process. The 'TelewerkForum' then had a feasibility study conducted. The feasibility study was financed by the participating parties, namely the Ministry of Transport and Public Works,

'Vereniging-ICT Nederland' [Netherlands ICT Association], Toshiba, MediaPlaza, KPN Telecom and the 'TelewerkForum'.

This study indicates that it is a realistic objective to allow around 10,000 employees in the geographical triangle of Amsterdam-Utrecht-The Hague to switch to a more flexible way of working in a few years. Past figures do not show that this would reduce the traffic jam problem in the triangle during that period, however, it does provide a stimulus to a social trend which is expected to lead to many more people avoiding the traffic jams in the foreseeable future by working at home during rush-hour. The requested contribution from the State government did not amount to 250 million, but only NLG 60 million.

The recommended implementation period is 4 years. The most important points for attention for the business community are to retain and attract good personnel and flexibility. Particularly for Small and Medium-sized Enterprises (SMEs), it is an attractive way of gaining experience with the information superhighway.

The Fileverduunningsplan was nominated for the 1999 European Telework Prize.

At the moment, Transport & Public Works has not yet given any concrete support to the execution of this plan.

'Stimuleringsmaatregel Dagindeling' [Timetable Programme Incentive]

The Ministry for Social Affairs and Employment has also developed initiatives within the framework of the 'Stimuleringsmaatregel Dagindeling' under the motto 'Our society is ready for new agreements'. Included in these measures is a subsidy scheme for experiments with other forms of timetable scheduling which enable people to better combine work and care. The experiments can be set up by governments, companies and public organisations. A total of NLG 60 million is available for the incentive measures up to 2002. A number of submitted projects are based on a form of teleworking and other new ways of working.

'Actieplan Emancipatietaakstellingen Departementen' [Departmental Action Plan for Liberalisation Objectives]

In addition, an interdepartmental working group (Economic Affairs, Housing, Regional Development and the Environment, Transport and Public Works, Finance and Social Affairs and Employment) is studying the possibilities of an 'availability scenario' within the framework of the 'Actieplan Emancipatietaakstellingen Departementen'. This entails that employees must be available, but can also carry out their work or part of it elsewhere. This scenario provides an alternative for the 'presence scenario' which still dominates, in which employees are expected to spend all of their working hours at their workplace. The availability scenario is intended to enable employees to better combine their jobs with their care responsibilities. Teleworking with supportive information and communication technology plays an important role in this. Besides simplifying the combination of work and care, teleworking would also push back mobility.

Sp.OED

Sp.OED ('Stimuleringsprogramma Opkomst Elektronische Diensten' [Incentive Programme for the Development of Electronic Services]), published a brochure about teleworking for SMEs in January 1999, see also section 2.2.3 on initiatives. This was done within the framework of a large-scale information programme based on six key objectives to accelerate the implementation of new telematics applications in the Dutch business community. The brochure describes the advantages and disadvantages and also provides a number of guidelines for the implementation of teleworking.

2.2.2 E-Commerce

E-commerce is part of the integrated total ICT policy of the Dutch government. An action

plan specifically aimed at e-commerce was published in March 1998: The e-commerce action plan. The objective of this plan is to further develop the Netherlands into one of the leading countries in the area of e-commerce. Related to the central function which the Netherlands already has in Europe, the ambition is to now develop the Netherlands into an 'Information Gateway to Europe'. To do so, the absorption capacity of e-commerce developments in the Dutch economy, particularly at SMEs, must be raised successfully, because the foreign competition is not standing still. The government considers the introduction and application of e-commerce to be mainly a matter for the market. The business community takes a leading role when it comes to investments in the infrastructure and technology required for e-commerce as well as the development of new electronic commerce services. The government's role remains limited to that of a booster and catalyst of the developments and activities. It does make this objective dependent on effective co-operation between the government and the business community as well as clarity about their division of roles.

Factors have been recognised world-wide which could interfere with the rapid development of e-commerce. These mainly concern factors of an economical, legal and technical nature. This is one of the reasons for the hesitancy of the Dutch business community to commence with e-commerce. SMEs in particular are reserved because the investments in people, hardware and software are high, while the return on investment is uncertain. There is also a risk of scarcity of expert, educated personnel who can make the required adjustments to business processes. In addition, there are numerous legal uncertainties, which require internationally co-ordinated actions in view of the global nature of e-commerce.

The following lines of action are based on the analysis of the above-mentioned obstacles and the government's views on its role:

- a favourable business environment for the rapid development of e-commerce
- the creation of clarity concerning the legal framework for electronic commerce
- the development and implementation of a perspective on international co-operation, from both a multilateral and a bilateral point of view.

With these lines of action, the government aims to bring about an acceleration in the desired developments, which will lead to a strengthening and renewal of the economic structure and to an improvement in competitive power. Important catchwords are awareness, the promotion of a transparent and accessible market, the promotion of confidence in and the reliability of electronic traffic, the removal of legal and infrastructural facilities.

source: 'Actieplan Electronic Commerce' [Action Plan for Electronic Commerce], The Hague, March 1998

2.2.3 Information society initiatives

Over the last few years, the government has invested a great deal in the development of the information society, the information superhighways and electronic services. First this was done to acquire a position, and second to maintain and expand the acquired position. The intention is to continue with these activities addressed to public administration, industry and the general population during the next few years. For the coming years, the government has set a number of goals for itself and has planned actions and reserved the necessary resources.

Public policies

'Nationaal Actieprogramma Elektronische Snelwegen' [National Action Programme for Information Superhighways] (NAP)

In December 1994, the Ministries of Economic Affairs, Transport and Public Works, the Interior, and Education, Culture and Science launched the 'Nationaal Actieprogramma Elektronische Snelwegen'. This programme was built up further through the priorities set by the European Union to realise an information society. The ambition was to make the Netherlands part of the leading group in Europe in the ICT area. The government made financial resources available to enable the execution of the following lines of action from the NAP:

- liberalisation of telecommunications infrastructure
- liberalisation of the Media Act
- definition of a public domain
- example projects in the public sector
- initiatives in the market sector

Within the framework of the above-mentioned lines of action, a number of projects were carried out and important results obtained. With the action programme, the government aimed to establish the right preconditions for the development of the information superhighway. 'Information superhighway' is used as a metaphor for both the infrastructure and new services.

The liberalisation of the telecommunications and media market were an important part of the creation of the correct conditions. Essentially, this has been realised according to the outlined approach. Work on the development of other preconditions (such as cryptography, privacy, the position of the government in the information market) is being carried out intensely, often in international committees. This takes place in interaction with the technological and social developments, with experience gained in forms of self-regulation.

The second line of the action programme was to stimulate new electronic services. In the direction of the market, a close co-operation process was concluded and a series of generic instruments were made operational (development credits, information, demonstration). The 'Nationaal Actieprogramma Elektronische Snelwegen' was re-evaluated in April 1998. It was concluded that the Netherlands' position compared to other countries in a number of areas was not realised and that further action was required: "The quality of the infrastructure in the Netherlands is generally good, giving a good starting position to meet the future demand from the market. The Dutch knowledge infrastructure is generally good, however, one bottleneck is that the education volume in the ICT area lags behind the demand. The provision of information within the government itself is difficult to compare on an international level, but requires improvements on a number of points. The development of electronic services is 'in the starting blocks'. Although the most important condition - access to networks for a large proportion of the population - appears to be better fulfilled in the Netherlands than in many other countries researched in the benchmark, the development on both the demand and the supply side in the market continues to lag behind' (Source: 'Boven NAP', herijking van het 'Nationaal Actieprogramma Elektronische Snelwegen (NAP)' ['Above NAP', re-evaluation of the 'Nationaal Actieprogramma Elektronische Snelwegen] (NAP)', April 1998). This resulted in a number of programme clusters for 1998:

- the government as a legislator and regulator, including the implementation of its responsibilities for the safeguarding of a number of fundamental values and standards in the electronic environment, such as the protection and regulation of fundamental rights, the guarantee of law enforcement and the provision of legal certainty.
- ICT and the government, including the fact that the government serves as a model and must make the best possible use of the opportunities offered by information technology, such as services to citizens and companies. Good examples of this include the Tax Authorities, the Public Works Department, the Central Bureau of Statistics and

the municipality of The Hague.

- Knowledge and accessibility, in which the spearheads are aimed at schooling and training in ICT professions, as well as research and accessibility of knowledge and information.
- Innovation of ICT developments in the market sector, not so much to bring about information superhighways but primarily to stimulate the use of information superhighways by citizens, companies and the government. To this end, the main stimulus is of the supply side of electronic services and there is also attention for Business to Business. The 'Actieplan Electronic Commerce' (section 2.2.2) was carried out within this framework.
- Telecommunications infrastructure, in which attention is focused mainly on the quality and quantity of (tele)communications infrastructure, such as using the potential offered by the cable infrastructure.

In order to realise this programme, besides the departmental resources available for 1998, a budget of NLG 90 million was made available from the structural continuous budget for Information superhighways.

De Digitale Delta, Nederland oNLine [the Digital Delta, the Netherlands oNLine]

In June 1999, the Ministry of Economic Affairs set up the Digitale Delta, Nederland oNLine in co-operation with the Ministries of the Interior and Kingdom Relations, Finance, Justice, Education, Culture and Science and Transport and Public Works. This is the continuation of the 'Nationaal Actieprogramma Elektronische Snelwegen' (NAP) of 1994. The Digitale Delta forms the framework within which the government's numerous concrete ICT measures can be placed for a period of three to five years.

It is a solution to the fragmentation of government initiatives. It integrates all recently introduced measures or documents in the area of Dutch ICT policy to be published in the near future. An example of this is the 'Actieplan Electronic Commerce' as described in section 2.2.2.

The Digitale Delta describes the Netherlands' starting position on the basis of benchmarking as favourable. The Netherlands' places seventh in a group of 55, and is included in the leading group (the information elite) along with the US, Singapore and the Scandinavian countries. Maintaining this position requires effort as well as the strengthening of the weaker parts of the ICT base. In the active role which the government wishes to play in this, it uses the starting point of bringing the preconditions for which it is responsible in order. It will help to remove any remaining obstacles, insofar as these cannot be solved by providers and clients themselves. The government distinguishes five cornerstones which together form the strength of the ICT base for the Netherlands. This is linked to the actions and activities:

- telecommunications infrastructure; the ambition is to achieve and maintain a first class, affordable, accessible and reliable communication structure. The government stimulates innovation and investments in the telecommunications infrastructure by safeguarding competition on the telecom market. However, a point of attention is that the rate at which the infrastructural capacity is expanded lags behind the rate at which the demand for capacity increases among business and private users, particularly through the explosive increase in Internet and mobile traffic. In addition, the opportunities offered by cable are still used insufficiently.
- Knowledge and innovation; the role of the government is to stimulate the (collective) knowledge in companies and institutes of knowledge, to help create clusters for applications, to help raise the level of entrepreneurship in the ICT business community, and finally, as a provider and financier of education, to stimulate the quantity and quality of people trained in ICT to meet the demand from the market.
- Access and skills: the government intends to stimulate familiarity with modern ICT and the development of skills. Companies and households have a relatively high number of

- modern facilities, however, the educational system must make up for lost ground.
- Legislation: aimed at the further equipping of laws and regulations, at providing legal certainty and at raising confidence in the information society.
 - ICT contribution to the public sector: Optimum use of ICT following the government's example. By 2002, at least one-quarter of public services must take place along the information superhighway.

Besides the NLG 70 million available annually for the development of the information superhighways, more than NLG 1 billion is involved for the period up to 2002.

Source: De Digitale Delta, Nederland oNLine, a publication of the Ministries of Economic Affairs, the Interior and Kingdom Relations, Finance, Justice, Education, Culture and Science and Transport and Public Works, June 1999.

Significant initiatives

A number of significant initiatives in the area of information society and e-commerce are described in random order below. In keeping with Dutch tradition, a number of these initiatives involve a joint venture between the government and the private sector. The initiatives vary from awareness-raising to concrete implementation projects.

'Overheidsloket' [Government counter] 2000

A project co-ordinated by the Ministry of the Interior and Kingdom Relations which provides implementation of the ICT contributions in the public sector. The objective for the Dutch municipalities is for at least one-quarter of services to take place electronically by 2002.

MediaPlaza

MediaPlaza was founded in 1997, initially for a period of 3 years up to 1 January 2000. It is a demonstration centre for the information superhighway and is intended to familiarise 100,000 business users with the opportunities offered by technologies such as the Internet. MediaPlaza is involved in supporting the integration of the Internet in society and politics. It is an initiative of four founders: ING Groep, Jaarbeurs Utrecht, the Ministry of Economic Affairs and KPN Telecom. In addition, some 65 other organisations and companies participate in MediaPlaza. It is a platform for providers, users, the government and knowledge centres. It has already reached around 60,000 users. Thanks to its success, the participants have decided to continue with a 3 year follow-up process. A new mission has been formulated: "From Thinking to Doing". In practice this means a shift from raising awareness to application.

Sp.OED

Sp.OED ('Stimuleringsprogramma Opkomst Elektronische Diensten' [Incentive Programme for Electronic Services]) is an initiative of the Ministry of Economic Affairs, VNO-NCW and MKB Nederland [Netherlands SME] and forms a follow-up to the objectives of the 'Nationaal Actieprogramma Elektronische Snelwegen', which is to give the Netherlands a leading role in the development of new ICT applications. From the initiators' point of view, this can provide an important contribution to the improvement of business practice and the competitive position. Sp.OED is a project of Syntens, an innovation network for businessmen. Sp.OED carries out an incentive programme with the objective of advising 3000 companies on the use of the information superhighway over a period of three years, up to the end of 2001. SMEs receive advice for free or for a small fee, and NLG 14 million is available for this purpose. Besides providing advice and information, Sp.OED is also involved in training, has its own website (www.syntens.nl/spoed) and has also developed a scan on electronic business. In 1998, a booklet with best practices was published in co-operation with ECP and others (see further on in this paragraph), called 'Elektronisch

Zakendoen, 40 inspirerende voorbeelden voor het midden- en kleinbedrijf' [Electronic Business, 40 inspiring examples for small and medium-sized enterprises]. In September 1999, another booklet was published by the same joint venture: 'Elektronisch Zakendoen, Inspiratie voor het midden- en kleinbedrijf' [Electronic Business, Inspiration for small and medium-sized enterprises], containing another 40 examples.

The Hague

The municipality of The Hague is involved in the implementation of an advanced long-term plan to stimulate the use of new media and promote communication between the municipality, Hague companies and public organisations and inhabitants of the city (www.denhaag.nl). In time, wide-band networks will be used to give all inhabitants access to cultural institutions, employment finding, teleshopping, etc. In addition, the possibility is being created of giving inhabitants online access to municipal information and municipal services, and enabling them to carry out all manner of transactions from home (for example, parking permits) which previously required a visit to city hall. Services such as teleworking, teleshopping and telelearning are integrated in this to some extent. The first sub-project is currently being implemented. The municipality of The Hague has invested NLG two-and-a-half million to ensure that all of The Hague's inhabitants, companies and social institutions are 'connected' to the Residentie.net [Residence network] (www.residentienet.nl) from April 2000. This is a city-wide electronic network which provides access to the Internet.

GigaPort

GigaPort is a new project of the government and the business community to stimulate the development of high-quality Internet applications. The GigaPort network, which will function mainly as a research network, will be one-hundred times faster than the current Internet. This network will enable, for example, designers in different places in the world to work on the same subject, such as a new model of car.

www.informe.nl

Www.informe.nl is a new information service in the area of the information superhighway, multimedia and electronic commerce. The purpose of Informe is to provide support to Dutch companies that are active in these areas.

Informe is part of Senter, an agency of the Ministry of Economic Affairs. Senter carries out incentive measures for various government authorities in the area of technology, the environment, export and international co-operation. Informe is carried out on behalf of the Ministry of Economic Affairs.

ECP

The Electronic Commerce Platform Nederland is a public-private partnership that was founded in 1998 with the goal of directionally accelerating electronic business for the international competitive position. It is a centre of knowledge with the following objectives:

- Development and exchange of knowledge
- Raising awareness of the importance of and opportunities offered by electronic business
- Setting up a facilitating framework, consisting of standards, codes of conduct and the like
- Stimulation of projects, education and research in the area of e-commerce.

ECP's participants include platforms such as EDIFORUM (platform in the area of Electronic Data Interchange), NCP (Nationaal Chipcard Platform) and EAN Nederland (standards for identification and communication). ECP has around 140 members from the business community, science and other intermediary organisations. The Ministry of Economic Affairs

became a member in 1999 and is on the executive committee. It finances ECP on a project basis. Besides subsidies for information and awareness-raising, this concerns assignments such as the development of:

- a code of conduct for electronic commerce. A quality mark that offers clients and consumers privacy and other guarantees
- an infrastructure for 'Trusted Third Parties', a kind of 'electronic notaries', which provide correct, safe and reliable message traffic over the information superhighway
- a uniform delivery module for the electronic exchange of data between companies and institutions such as the Central Bureau of Statistics, tax authorities and LISV ('Electronic Heerendiensten').

Twinnings

Twinnings is an example of successful public and private co-operation. Twinning is an initiative of the Ministry of Economic Affairs from 1998 and is a component of the measures and investments as described in the Digitale Delta. With this project, new businesses in the ICT sector are financed, supported and accommodated in one of the two Twinning Centers in the Netherlands by the 'Twinning Start Fonds' [Twinning Start Fund]. A total of around 80 companies are located in these centres. The original point of departure was that the government would finance the Start Fonds in the initial phase. However, the market soon turned around and joined the initiative. The Twinning Centers house companies together, facilitating cross-fertilisation. The Twinning Network is a client network of experienced businessmen and financiers who offer assistance and support to the new businessmen. There is also the possibility of getting a foothold in the US through Twinning with the assistance of two appointed 'foothold managers' in the US.

Educational initiatives

As part of the Dutch government's ICT policy, the Ministry of Education and Science pursues an incentive policy to make ICT commonplace in the Dutch educational system. The department creates the framework, while the educational institutions are responsible for the further development and implementation of the ICT policy. The implementation of 'Investeren in Voorsprong' [Investing in Advances] started in July 1997. Since then, ICT in education has developed rapidly. Schools and sectors of institutions in primary and secondary education, as well as agricultural, professional and adult education are spearheading this initiative. Two experimental teacher training courses have commenced and all teacher training courses involve ICT projects. There is a pilot project with the national educational network, knowledge net and its content and use. Final attainment levels have been developed for the further training of teachers, ICT co-ordinators and school management, and the first courses have started. The development of educational software is stimulated and a number of example and development projects have been given financial support.

Within the framework of 'Onderwijs Online' [Education Online], the Dutch government made available NLG 925 million for the period 1997-2002.

3. Electronic Commerce and Telework Penetration and Trends: The Main ECATT Findings for the Netherlands

3.1 Background

European policy is increasingly focussed on promoting the business techniques and new ways of working which will provide the economic and social foundation of the Information Society. It will be essential to monitor the effectiveness of this policy, some indication of progress and of areas requiring more or more concerted action. At the same time, many areas of European business urgently need of information about the speed of these developments in European markets, which they expect to have a strong impact on their global competitiveness. Despite the increasing number of studies on electronic commerce and telework, no single source of reliable empirical information exists on the extent, scope, nature of and factors affecting the speed of these developments in Europe.

The ECATT project will generate representative information on the prevalence and spread of electronic commerce and new forms of work in Europe. It will also give an up-to-date picture of major practices, projects and schemes across Europe. Ecatt will conduct three major data gathering activities:

- 100 case studies in most Member States, with half each focussing on new ways of working and on electronic commerce.
- An Interview survey of 7,500 EU citizens in at least 10 EU Member States, covering attitudes to and practice of new ways of working and electronic commerce.
- An Interview survey of at least 4,000 EU businesses in at least 10 EU Member States, covering current practice and plans to introduce the various forms of new ways of working and electronic commerce.

The Interview survey data were collected and processed by Empirica and made available to the Ecatt-consortium. The Interview surveys were taken from February to May 1999 in the following countries.

Survey Population		
	GPS ¹	DMS ²
<i>Denmark</i>	<i>500</i>	<i>361</i>
<i>Finland</i>	<i>502</i>	<i>308</i>
<i>France</i>	<i>1008</i>	<i>501</i>
<i>Germany</i>	<i>1000</i>	<i>501</i>
<i>Ireland</i>	<i>547</i>	<i>374</i>
<i>Italy</i>	<i>1010</i>	<i>506</i>
<i>Netherlands</i>	<i>526</i>	<i>300</i>
<i>Spain</i>	<i>1010</i>	<i>500</i>
<i>Sweden</i>	<i>500</i>	<i>306</i>
<i>United Kingdom</i>	<i>1095</i>	<i>501</i>
<i>EUR10</i>	<i>7700</i>	<i>4158</i>

¹ General Population Survey

² Decision Maker Survey

Information on new ways of working and electronic commerce in the US and Japan will be collated as reference bases in order to benchmark progress in Europe as a whole. National conditions for development of electronic commerce and new forms of work will also be investigated. The EcaTT-project has its own web-site: www.ecatt.com.

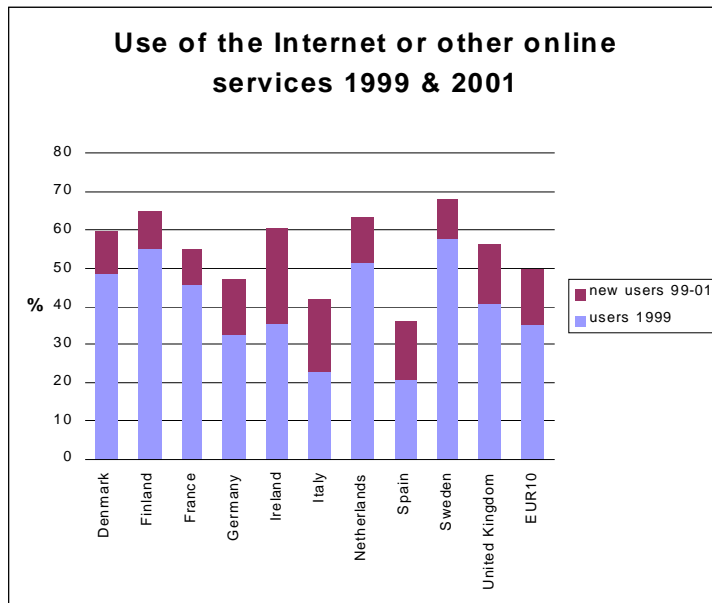
3.2 Electronic Commerce

3.2.1 PC and E-mail usage, Internet and online services access and use by the population

The Netherlands, being well-equipped with telecommunications and PCs, finds itself among the European front-runners when it comes to the use of E-mail, the Internet and other online services

Within Europe, the Netherlands is well-equipped in terms of telecommunications infrastructure and leads the way with respect to PC penetration and use in private households. No less than 71% of the Dutch population has access to a PC at home, compared to a European average of 46%. A large proportion of the population has Internet access and has used the Internet (51%) at some time or are regular Internet users (35%). For E-mail use, the Netherlands is among the leading countries in Europe, with 31% of the Dutch population using E-mail, compared to a European average of 18%, and a 40% average in Sweden. With these figures, the Netherlands ranks first in Europe for PC access and fourth for E-mail use. The situation is not likely to change dramatically over the next two years. The Netherlands will continue to grow strongly in both areas. Its rank and position from a European perspective will be the same. Please note that at the time of the interviews 'free Internet' had not yet been introduced in the Netherlands, meaning that the ECATT study could provide a distorted view of the forecasts. The introduction of free Internet immediately resulted in an enormous growth in Internet traffic.

Use of the Internet or other online services from 1999 to 2001 (in %)						
	Users 1999	New users 1999-2001	Users 2001	Growth 1999-2001	Ranking 2001	Ranking (Growth)
<i>Denmark</i>	48.5	11.2	59.7	23.1	5	6
<i>Finland</i>	54.9	10.1	65.0	18.4	2	9
<i>France</i>	45.5	9.3	54.8	20.4	7	8
<i>Germany</i>	32.9	14.2	47.1	43.2	8	4
<i>Ireland</i>	35.6	24.6	60.2	69.1	4	3
<i>Italy</i>	22.7	19.1	41.8	84.1	9	1
<i>Netherlands</i>	51.1	12.0	63.1	23.5	3	6
<i>Spain</i>	20.7	15.5	36.2	74.9	10	2
<i>Sweden</i>	57.9	10.2	68.1	17.6	1	9
<i>United Kingdom</i>	40.6	15.5	56.1	38.2	6	5
EUR10	35.2	14.4	49.6	40.9%		
<i>base: all respondents (n= 7.700)</i>					© empirica 1999	



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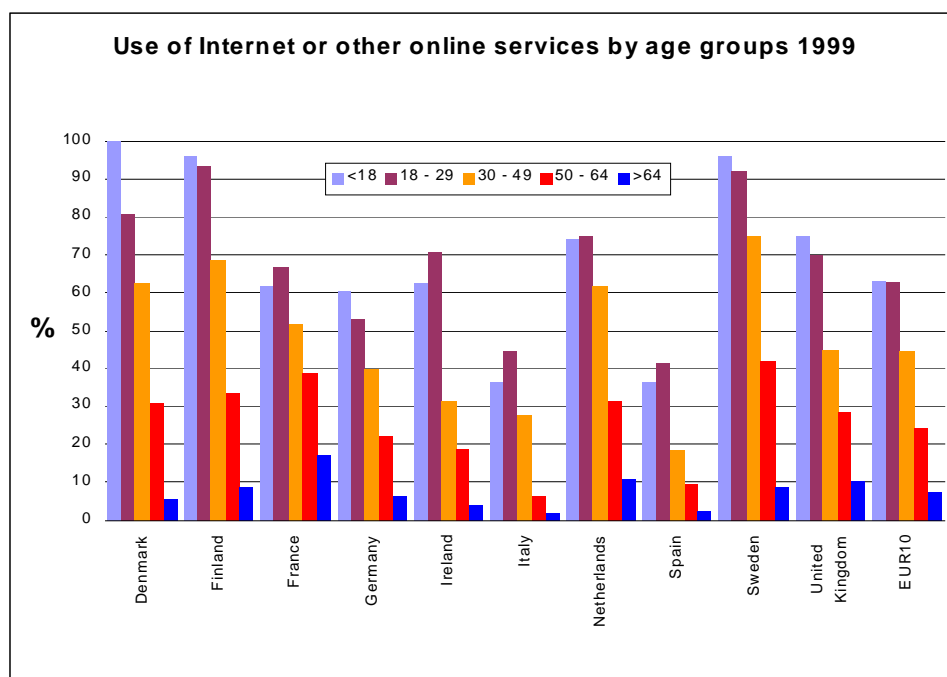
In Europe, the Internet is still mainly a male phenomenon, is hardly used by those over 50 and is mainly restricted to better educated and qualified people. However, these boundaries are starting to fade in the leading countries, including the Netherlands.

In most of Europe, the Internet is still mainly a male phenomenon. The situation is slightly different in the countries which lead in Internet use (Scandinavia, the Netherlands), where the gender gap is slowly narrowing and will be virtually closed in about two years' time. Currently around 60% of Dutch Internet users are male, and 43% are female, a difference of nearly 25%. In 2 years, the percentages will be 70% and 57%, respectively, a difference of less than 15%.

All together around 6 million people in the Netherlands (of a population of around 15 million) have used the Internet at some time, while 4 million are regular Internet users. It is striking that Internet use drops dramatically among the population over 50 years of age and even more so for those 65 and older. Only 11%, or in absolute terms 223,000 of around 2 million people aged 65 and older in the Netherlands have ever used the Internet. This phenomenon is not restricted to the Netherlands, but can also be observed throughout Europe.

Use of the Internet or other online services (all users) according to age (in %)					
	<18	18 - 29	30 - 49	50 - 64	>64
Denmark	100	80.7	62.5	30.9	5.9
Finland	96.1	93.2	68.6	33.3	8.5
France	61.5	66.5	51.6	38.6	17.2
Germany	60.2	53.2	39.7	22.3	6.0
Ireland	62.5	70.5	31.1	18.7	3.8
Italy	36.4	44.4	27.7	6.1	1.9
Netherlands	73.9	75	61.6	31.3	10.7
Spain	36.4	41.3	18.2	9.5	2.3
Sweden	95.9	92	74.8	42	8.6
United Kingdom	75	69.8	44.7	28.7	9.9
EUR10	57.2	57.7	40.9	22.8	8.0

base: all respondents (n= 7.700) © empirica
1999



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The more qualified a person is, the more likely he or she is to be an Internet user. This situation is very noticeable in countries like Germany, Spain, Italy and France. In the Scandinavian countries and the UK, the proportion of Internet access by less qualified people is already much higher, with figures almost twice as high as Dutch figures.

3.2.2 Online activities relating to electronic commerce: online shopping and banking by the population

Online shopping and banking still live in the shadows in Europe, including the Netherlands, and to some extent in the other countries considered to be front-runners. However, growth rates indicate signs of (slow) change.

In 1999, only a small proportion of the European population was actively engaged in online activities relating to electronic commerce, varying between 2% (ordering groceries) and 14% (supplier information search). Upon analysis, it becomes apparent that the Internet and online services are used mainly for looking up information, followed by game playing and website user registration. Online activities such as making payments online and the different online shopping activities rate low. Even the figures for ordering books, CDs and videos are less than 5%. The percentage for online payments is very low at 4%, with the extremes being 1% in Spain and a still rather low 7% in the UK. Throughout all of the different countries, Europeans are extremely cautious when it comes to making payments online.

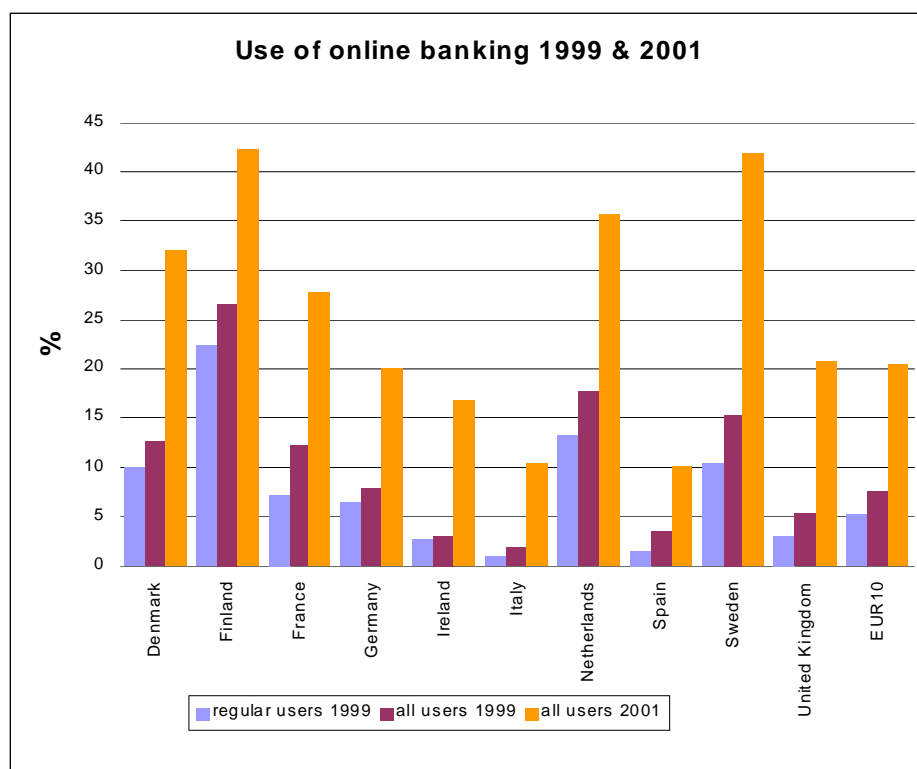
Growth rates for the next two years will be impressive if the plans of the interviewees become reality. The result will then be that a quarter of the European population is active in online information search activities and around 15% will use the Internet to shop for various goods online. Many Europeans also expect secure and usable online payment facilities to be in place by 2001 as an average of 10% indicates that it would like to make use of these services by that time. Again, the extremes are found in Spain (6%) and the UK (18%).

With the exception of online banking, the figures for the Netherlands are almost identical to the European average. Interestingly, the lead taken by the front-runner countries is not as dramatic with respect to Internet use, etc. It is striking that even in these countries online shopping will only grow moderately from a base in 1999 which is not far above the European average. However, Scandinavians are almost twice as active in online information search activities and these figure will surpass 40% in 2001. On average, 25% of Scandinavians will use online shopping, compared to a 15% European average.

Use of online banking (in %)							
	Regular users 1999	Occasional users 1999	All users 1999	New users 1999 - 2001	All users 2001	Ranking 1999	Ranking 2001
Denmark	9.9	2.8	12.7	19.4	32.1	4	4
Finland	22.5	4.2	26.7	15.6	42.3	1	1
France	7.2	5.0	12.2	15.5	27.7	5	5
Germany	6.5	1.3	7.8	12.2	20.0	6	7
Ireland	2.6	0.4	3.0	13.9	16.9	9	8
Italy	0.9	0.9	1.8	8.6	10.4	10	9
Netherlands	13.3	4.4	17.7	17.9	35.6	2	3
Spain	1.5	2.0	3.5	6.6	10.1	8	10
Sweden	10.4	5.0	15.4	26.6	42.0	3	2
United Kingdom	3.0	2.2	5.2	15.6	20.8	7	6
EUR10	5.1	2.4	7.5	12.9	20.4		

base: all respondents (n= 7.700)

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Online banking is seen as a 'killer application' for electronic commerce. However, the proportion of online bankers among the population is still rather low, with a European average of 7%, of which only 5% are regular users. With 13%, the Netherlands ranks second, whereas in Finland one-quarter of the population already uses online banking. Italy and Spain lag behind with just 2% and 4%, respectively. The expected growth rates are high, and figures for the Netherlands are expected to almost triple, reaching 36% by 2001. The Netherlands will maintain a leading position, but will trade places with Sweden, which is currently in third place, and will be second in 2001. Finland will continue to be the front-runner with twice the percentage of online banking users in 2001, at 42%.

3.2.3 Barriers to online shopping

The Dutch and Europeans in general are cautious when it comes to online shopping, mainly because they do not recognise the need for it.

The main barrier to online shopping is the perception by around one-third of the European population that there is no need for it. One-quarter indicate a lack of technical facilities for Internet access in their homes as a barrier. The third barrier mentioned is product characteristics, i.e. the product cannot be touched or tried on. Less than 10% list the risks of fraud and risks relating to privacy and data security as barriers. However, in the leading countries this figure reaches up to 18%. This probably indicates an underestimation of the related problems by those who are not yet very acquainted with online shopping.

3.2.4 Advantages of online shopping

Convenience is seen as the key advantage of online shopping.

Europeans believe that online shopping will involve less effort (68%) with products being received faster (59%), and that it may potentially enable people to find more interesting things to buy (59%). One-third believe that online shopping saves money.

The largest number of online shopping enthusiasts are found in Ireland and Spain. The Netherlands is more or less in line with the European average.

3.2.5 E-mail use, Internet and online services access and use by establishments

Although 2/3 of Dutch establishments already use E-mail, this only places the Netherlands in 6th place among the European countries.

Top figures are achieved by the Scandinavian countries, ranging from 80% to 90%. In relation to the growth rates for the next two years, the Netherlands will climb up to 5th place.

E-mail and Internet use in Dutch SMEs is above average. As in SMEs in other countries, E-mail and Internet use is less self-evident than in large establishments

Almost 45% of companies with up to 10 employees use E-mail, those with 10-50 employees reach 53% and those up to 200 employees 84%. Among the very large establishments with more than 500 employees 100% have E-mail and Internet use. With the exception of slow growth for SMEs with up to 50 employees, its average growth rates will place the Netherlands near the leading countries such as Finland and Denmark where an E-mail account will be almost as self-evident as a telephone by 2001, even in SMEs.

Use of E-mail, Internet and intranet in Dutch establishments according to the size of the organisation in 1999

	0-9 empl.	10-49 empl.	50-199 empl.	200-499 empl.	>500 empl.	Average
E-mail use	43%	63%	84%	93%	100%	75%
Internet use	38%	62%	75%	88%	100%	70%
Intranet use	4%	28%	43%	51%	78%	37%
© empirica 1999						

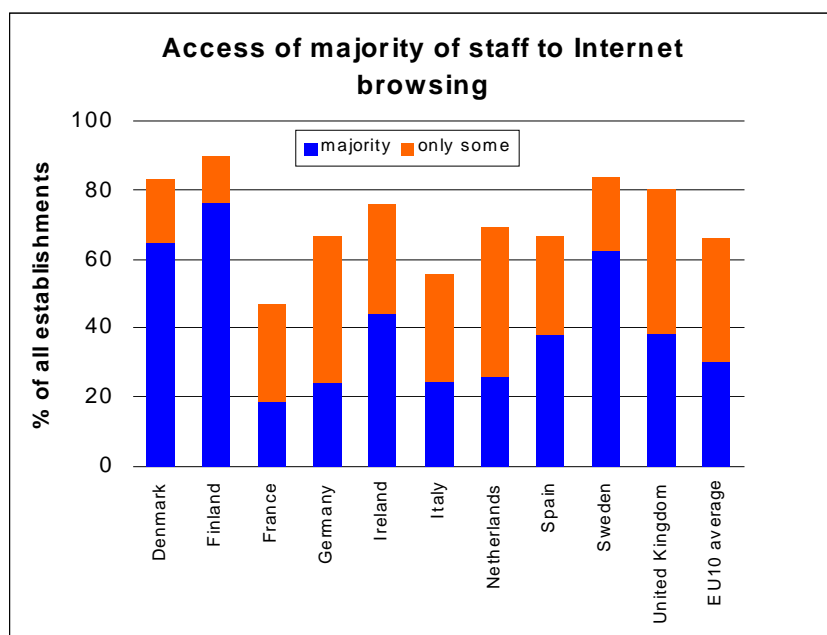
A similar picture emerges with regard to the use of the Internet: 70% of the Dutch establishments, just above average, have Internet access, compared to 90% in Finland. Those establishments with less than 10 employees only achieve a figure of 38%, which is still above average, but much lower than in the leading countries which reach almost 75%.

3.2.6 E-mail and Internet 'censorship' in Dutch establishments

Although this is almost 10% above the average, only half of Dutch establishments give the majority of their workforce access to E-mail. In the European front-runner Finland, this is 80%. Among the SMEs (up to 10 employees) this figure is 43%. It is against this background that many Dutch employees are effectively excluded from the opportunities and advantages of using the effective communication tool constituted by the Internet. The situation is worse with respect to Internet access. Just 37% of the companies with Internet access allow the majority of their employees to use it. This is below the European average. With 28% for companies with less than 10 employees, the figure exceeds the weighted European average of 23%. A possible explanation for this is the indicated by fear

of a decrease in productivity as a result of misuse of the Internet and E-mail.

Staff access to Internet browsing (in %)				
	(1) Majority have access	(2) Only some have access	Ranking of (1)	(1) as % of all user establishments
Denmark	64.9	18.2	2	78.1
Finland	76.3	13.4	1	85.1
France	18.6	28.4	10	39.6
Germany	24.2	42.3	9	36.4
Ireland	44.4	31.6	4	58.4
Italy	24.5	31.5	8	43.8
Netherlands	25.7	43.7	7	37.0
Spain	38.1	28.6	6	57.1
Sweden	62.3	21.7	3	74.2
United Kingdom	38.5	41.6	5	48.1
Total Sample	39.1	31.0		55.8
EU10 average	30.5	35.4		46.3
Base: All establishments (n=4.158) 1999				© empirica



© empirica 1999

Comparable figures are revealed by the analysis of intranet data relating to intranet which is used in slightly more than one-third of Dutch establishments.

From a European perspective, the above figures put the Netherlands in the middle bracket when it comes to the use of E-mail, Internet and intranet. However, the differences compared to the Scandinavian countries are still large.

Large companies have jumped on the Internet and electronic commerce bandwagon, while SMEs have a hard time.

In the Netherlands, particularly those establishments with more than 500 employees appear to be well-prepared for the information age: 100% use E-mail, 100% use the Internet, and ¾ use an intranet. SMEs are less well-prepared, particularly those with up to 10 employees: slightly less than 40 % of them use E-mail and the Internet and only 4% use an intranet.

3.2.7 Online and electronic commerce activities by establishments

Dutch establishments have identified the advantages associated with offering information and having a presence on the Internet and have started to take appropriate actions.

Dutch establishments have an average Internet presence, with 42% of Dutch establishments having a presence on the Internet. The gap between the Netherlands and the leading countries Sweden and Denmark is about 15%. Finland is the exception in Europe, with 2/3 of its establishments already having a presence on the Internet. In two years, Internet presence will increase by 22%, and the Netherlands will be on the same level as today's front-runner. The ranking of the Netherlands, as well as the other European countries, will not change.

However, most of the Internet presence is of a passive nature

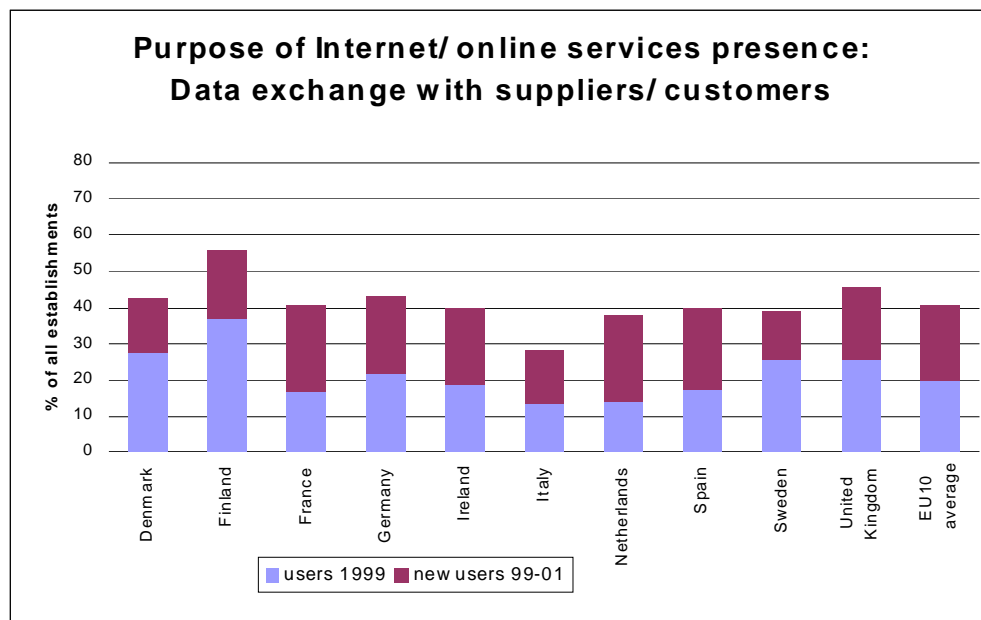
Most websites provide simple information offers and are only used for advertising and marketing purposes. One-quarter of the Dutch establishments with an Internet presence provide online sales possibilities, which is higher than the European average. In countries such as Finland this figure is almost twice as high.

Although much of the effort in the Netherlands is focused on advertising, marketing, free information and data exchange (the business-to-business area), the Netherlands is at risk of lagging behind in the area of joint processes and data exchange between suppliers and customers (the business-to-business area).

Almost 15% of Dutch establishments, or one-third of those with an Internet presence, exercise some form of electronic data exchange with suppliers and business partners by means of the Internet. This figure will increase to almost 40% in 2001. Despite nearly having the highest growth figures in Europe, the Netherlands still ranks in 9th place.

Purpose of www activities: Data exchange with suppliers/customers (in %)					
	Users 1999	New users 99-01	Users 2001	Ranking 1999	Ranking 2001
<i>Denmark</i>	27.6	14.9	42.5	2	4
<i>Finland</i>	36.9	18.9	55.8	1	1
<i>France</i>	16.6	24.0	40.6	8	5
<i>Germany</i>	21.6	21.5	43.1	5	3
<i>Ireland</i>	18.9	21.0	39.9	6	6
<i>Italy</i>	13.4	14.7	28.1	10	10
<i>Netherlands</i>	14.0	23.7	37.7	9	9
<i>Spain</i>	17.1	22.7	39.8	7	7
<i>Sweden</i>	25.4	13.7	39.1	4	8

United Kingdom	25.6	20.2	45.8	3	2
Total Sample	21.1	19.7	40.8		
EU10 average	19.9	20.5	40.4		
Base: All establishments (n = 4.158)				© empirica 1999	



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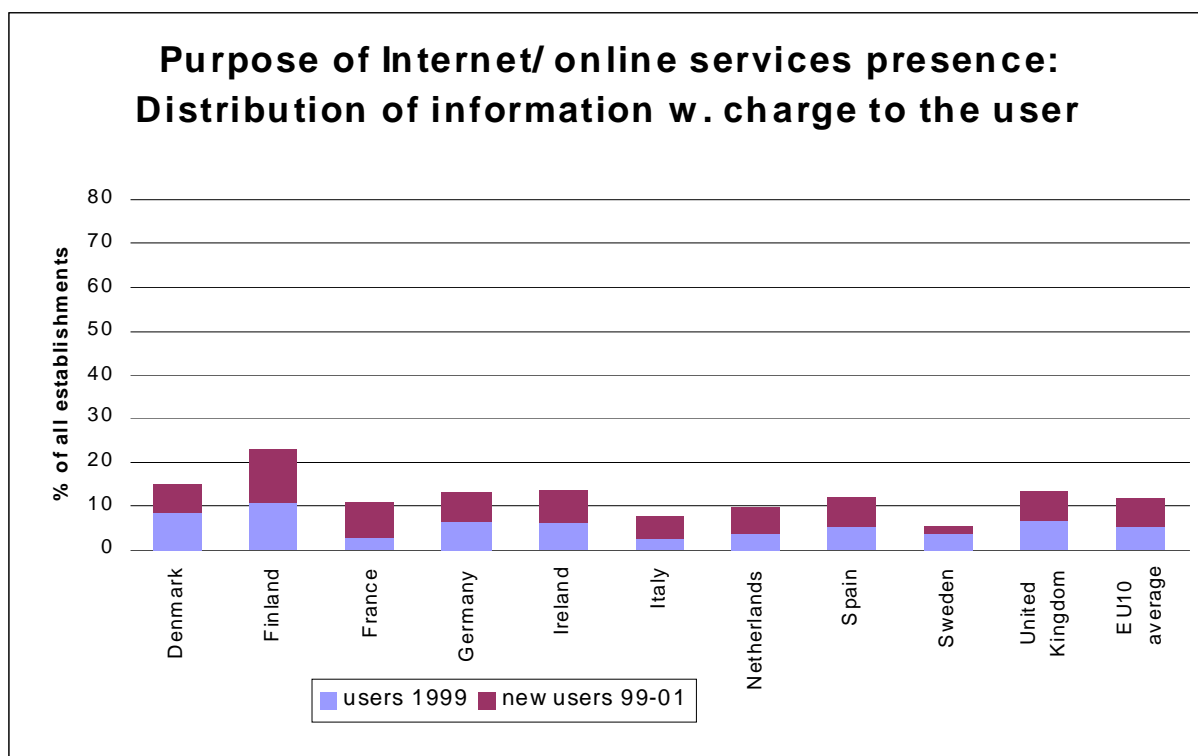
When looking at online procurement activities, 1/3 of Dutch establishments are already active in this area, which will increase to around 40% in 2001, meaning that the Netherlands is not growing as quickly as the rest of Europe and will fall below the average. With regard to the implementation of joint business processes with partner organisations over the Internet, only 1/5 of the Dutch establishments will have implemented these by 2001. The performance for the Scandinavian front-runner countries indicates a gap of 20%. Consequently, these figures have put the Netherlands into the group of laggards.

The Netherlands is an average starter in the area of online sales (business-to-consumer)

The same holds true for the business-to-consumer area. Only 10% practise online sales. This amounts to 25% of the establishments with an online presence. The Netherlands will not continue to rate above the European average in this area due to relatively slow growth over the next two years.

Purpose of www activities: Distribution of information at a charge (in %)					
	Users 1999	New users 99-01	Users 2001	Ranking 1999	Ranking 2001
Denmark	8.6	6.3	14.9	2	2
Finland	10.8	12.0	22.8	1	1
France	3.0	7.9	10.9	9	7
Germany	6.4	6.7	13.1	4	5
Ireland	6.1	7.4	13.5	5	4
Italy	2.8	4.8	7.6	10	9
Netherlands	3.7	6.0	9.7	7	8
Spain	5.1	7.0	12.1	6	6
Sweden	3.5	1.9	5.4	8	10
United Kingdom	6.7	7.0	13.7	3	3
Total Sample	5.5	6.7	12.2		
EU10 average	5.1	6.6	11.7		

Base: All establishments (n = 4.158) © empirica 1999



Not only the Netherlands, but in Europe as a whole, hardly any organisations (only 6% on average) offer information on the Internet at a charge to the user. This figure will double by 2001, but with the exception of Finland (more than 20% in 2001), nowhere will have a more widespread offer.

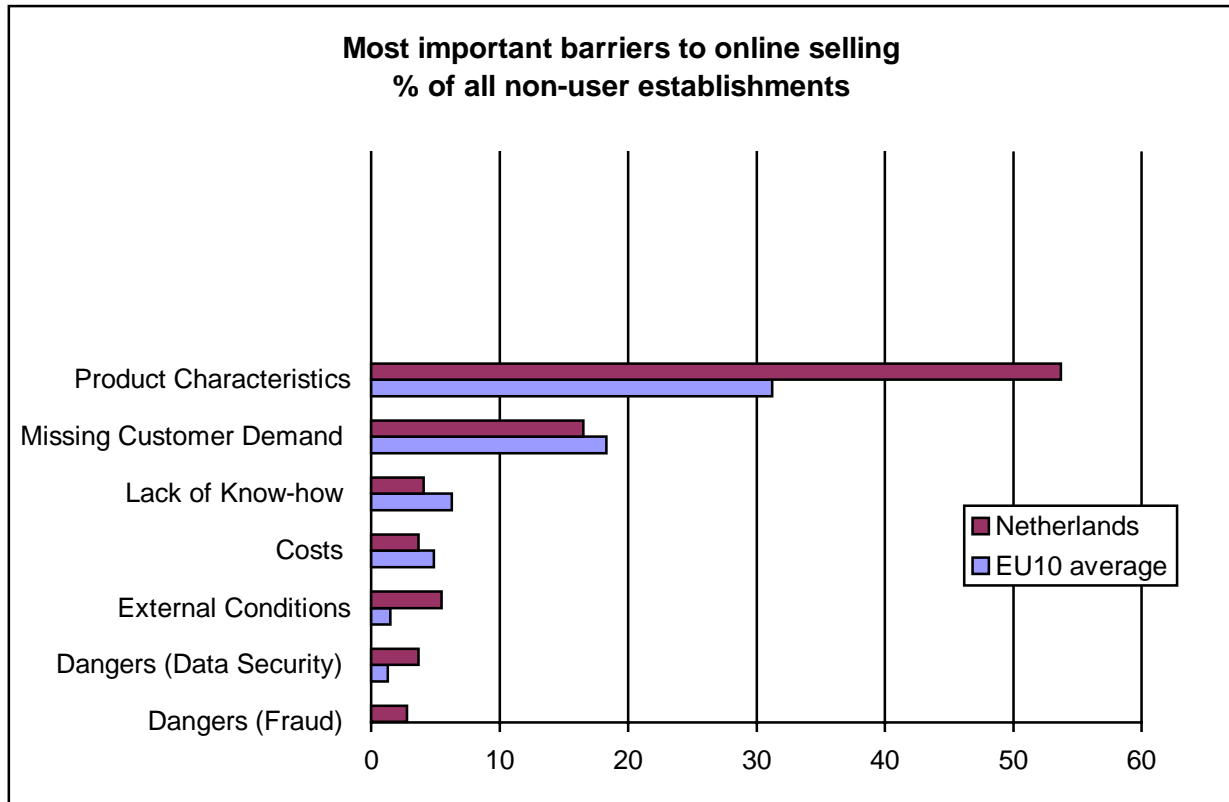
3.2.8 Barriers to online sales and online procurement

Dutch establishments recognise the need for online sales but are sceptical about its usefulness, mainly because of the product characteristics

There appears to be a consensus among many organisations in Europe as to the need and usefulness of online sales, to the extent that around 40% of companies that do not currently offer online sales are not willing to deal with the subject. Other reasons given for not starting online sales activities include (in order of relevance) product characteristics (products being unsuitable for online sales) and the anticipation of a lack of customer demand. Risks related to privacy, data security and fraud do not rate very high and do not appear to be decisive factors in the pros and cons of online sales. The Dutch situation is different. Relatively speaking these risks do not score high in the Netherlands, but do score significantly higher than in the rest of Europe. Although there is no explanation for this, it is a striking feature.

In addition, only 15% of companies that do not currently offer online sales are unwilling to deal with that subject. 55% indicate product characteristics as being the major barrier for online sales.

Barriers to online selling (in %)									
	Lack of Customer Demand	No Need	Costs	Lack of Know-how	Risks (data security)	Risks (Fraud)	Product characteristics	External Conditions	Others
<i>Denmark</i>	38.0	48.6	3.5	9.6	0.0	0.0	1.5	0.0	0.0
<i>Finland</i>	15.1	30.0	2.3	0.0	1.9	0.7	42.3	0.0	4.9
<i>France</i>	15.6	48.4	5.7	9.5	1.4	0.4	26.7	1.5	0.7
<i>Germany</i>	26.6	42.8	7.6	4.9	0.6	0.3	35.0	3.0	0.0
<i>Ireland</i>	20.9	50.8	2.6	2.0	0.4	1.7	15.8	0.2	16.9
<i>Italy</i>	13.7	53.1	2.0	4.3	1.1	0.4	24.2	0.0	1.0
<i>Netherlands</i>	16.5	14.2	3.7	4.1	3.7	2.8	53.7	5.5	4.1
<i>Spain</i>	9.2	29.7	3.1	9.7	2.7	0.8	39.1	0.7	5.5
<i>Sweden</i>	8.7	35.0	1.2	4.2	1.8	1.3	40.6	1.1	0.8
<i>UK</i>	18.1	49.7	5.3	6.6	1.3	0.4	26.0	0.5	3.5
<i>Total sample</i>	17.9	41.7	3.9	6.0	1.4	0.8	29.9	1.2	3.3
<i>EU10 average</i>	18.3	43.6	4.9	6.3	1.3	0.6	31.2	1.5	1.9
<i>Base: Establishments neither using nor planning to introduce online selling (n=2913)</i>									
<i>© empirica</i>									
1999									



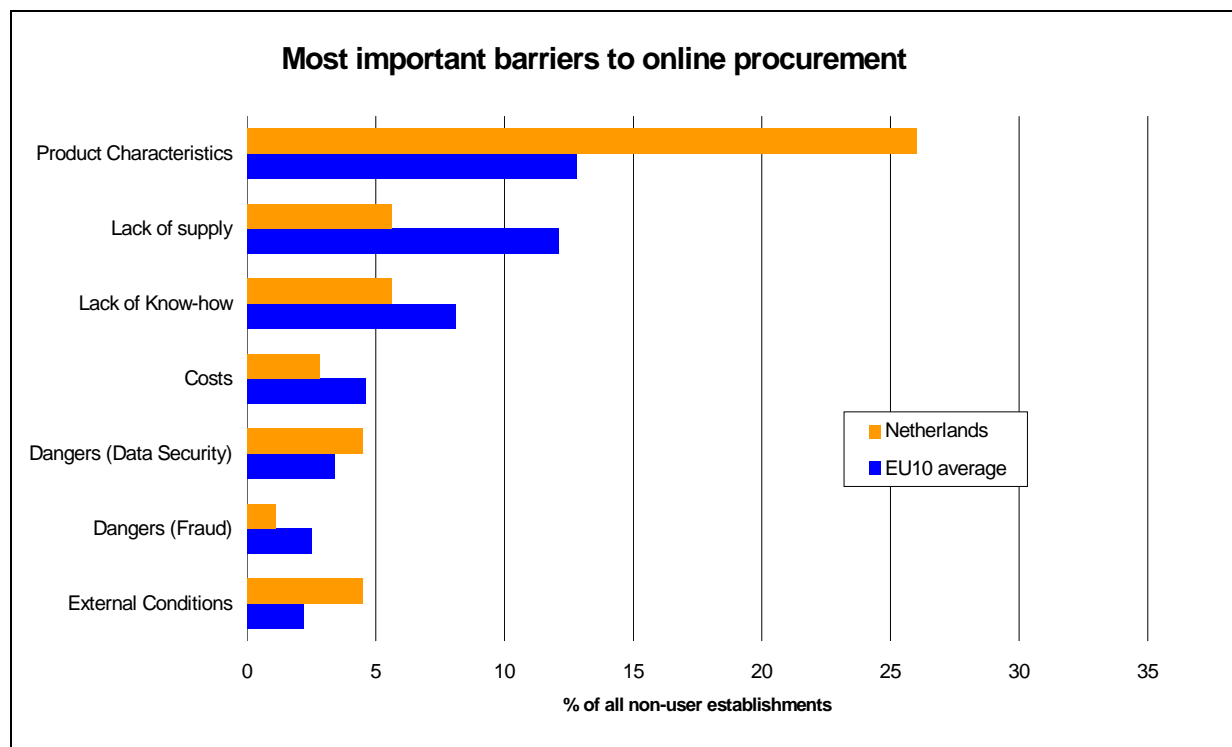
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In most of the European countries the lack of need and supply of online offers by suppliers, etc., is seen as a key barrier to a wider spread of online procurement.

At more than 50%, a very high percentage of establishments that neither use nor plan to introduce online procurement do not recognise the need for it. Other important reasons include product characteristics (i.e. products do not lend themselves to online sales) and a lack of supply of online offers by suppliers. The Dutch attitude towards online procurement is virtually the same as for online sales. Only ¼ of companies that neither use nor plan to introduce online procurement do not recognise the need for it. Again, product characteristics are the major barrier. Again there's no explanation for that. Lack of supply does not appear to play an important role.

Barriers to online procurement (in %)									
	Lack of supply	No Need	Costs	Lack of Know-how	Risks (Data Security)	Risks (Fraud)	Product Characteristics	External Conditions	Others
Denmark	18.4	67.1	3.0	10.9	0.0	0.0	0.2	0.0	1.0
Finland	14.7	48.5	1.6	0.4	2.8	2.8	9.2	0.2	2.9
France	9.3	52.4	7.6	13.3	5.2	6.4	10.6	3.4	1.8
Germany	19.0	57.8	6.0	6.7	1.3	1.5	14.3	2.5	0.6
Ireland	12.0	63.5	3.3	4.3	6.9	0.2	5.6	0.1	12.1
Italy	10.4	67.7	2.1	4.5	1.7	1.1	9.0	0.4	0.0
Netherlands	5.6	24.9	2.8	5.6	4.5	1.1	26.0	4.5	18.6
Spain	9.0	43.1	1.0	9.5	2.6	0.9	24.1	3.7	10.4
Sweden	6.0	47.4	1.1	7.6	2.3	1.3	14.5	3.3	0.8
UK	10.8	60.8	5.3	9.0	6.9	3.1	8.3	1.0	3.2
Total sample	11.5	54.4	3.7	7.7	3.4	2.1	12.4	2.0	4.6
EU10 average	12.1	55.8	4.6	8.1	3.4	2.5	12.8	2.2	3.2

Base: Establishments neither using nor planning to introduce online procurement (n=2282)
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3.2.9 Summary

To sum up, it can be stated that Dutch households and establishments are well-equipped with information and communication technologies and have one of the leading, if not the best telecommunications infrastructures in Europe. In spite of these very good prerequisites for making the best possible use of these technologies and the fact that the Dutch population is among the leading users of E-mail and the Internet, Dutch employees are relatively poor users of E-mail and the Internet and intranets even though they are still above the European average. This holds true particularly for SMEs, whereas large corporations already make intensive use of all of these facilities. The former appear to constitute a problem group in this respect.

A striking feature determined through the analysis is the fact that many Dutch establishments do not enable and/or allow the majority of their employees to use the Internet or E-mail freely. Dutch companies appear to exclude their employees from both. A possible explanation for this is the indication of a fear of a decrease in productivity as a result of fun and private use of the Internet and E-mail.

The demand for online banking is starting to emerge in the Netherlands, which finds itself at a front-runner level along with the Scandinavian countries. The demand for online shopping is only starting to emerge in the Netherlands, which is at the European average. Many of the interviewees argue that they do not recognise the need for online banking or online shopping. Those that do use it, mention the high levels of convenience as the main advantage. Companies themselves are also not very active in offering products online. Dutch organisations are average starters in the area of online sales (business-to-consumer). Their Internet offers and websites are mostly of a passive nature, information provision at a charge to the user is only offered in very exceptional cases. However, the latter also holds true for the vast majority of European countries. In contrast with many European establishments, many Dutch establishments recognise the need for online sales but are sceptical about its usefulness, mainly due to product characteristics.

The Dutch establishments lag behind in electronic commerce in the area of business-to-business applications. This includes data exchange with suppliers and business partners over the Internet and joint business processes with partners. When looking at online sales and online procurement, the Netherlands is not expected to remain above the European average. The reason for this is probably that in their experience products do not lend themselves to online sales and procurement.

3.3 Telework

3.3.1 Telework penetration and growth

Telework is booming in Europe: diffusion and penetration have grown significantly over the past 5 years.

In 1994, a high level expert group advised the Commission to set a target for Europe of 10 million teleworkers by 2000. New survey results from the ECATT project show that this target will be achieved: there are already 9 million Europeans teleworking.

The figure of 9 million teleworkers covers all kinds of telework, not only those who regularly spend one or more days a week working away from the office at home or on the road using computers and online connections (6 million), but also those who do so less

often, the occasional or supplementary teleworkers (3 million).

The overall European figure translates into an average of 6% of the European workforce. Here the ECATT survey exposes a wide variation across the Member States. Whereas in some countries the number of persons teleworking to date is only half the average, in other countries such as Finland a massive 17% of the workforce is already taking advantage of these new techniques.

In the Netherlands 15% of today's workforce are teleworkers (including supplementary). This figure is more than twice the European average and follows behind Finland and Sweden which have 17% and 16% respectively. This amounts to 1 million teleworkers in the Netherlands. These teleworkers can be classified as follows: 2/5 home-based teleworkers, another 2/5 mobile teleworkers and 1/5 self-employed in SOHOs.

Home-based teleworkers are those who

- work from home (instead of commuting to a central workplace) for at least one full working day per week
- use a personal computer in the course of their work
- use telecommunications links (phone/ fax/ e-mail) to communicate with their colleagues/ supervisor during work at home
- are either in salaried employment or self-employed in which case their main working place is on the contractor's premises

Individuals who are teleworking from home more than 90% of their overall working time are referred to as permanent teleworkers, while those working from home less than 90% of their overall working time, but more than one full day per week, are referred to as alternating teleworkers.

Mobile teleworkers are those who

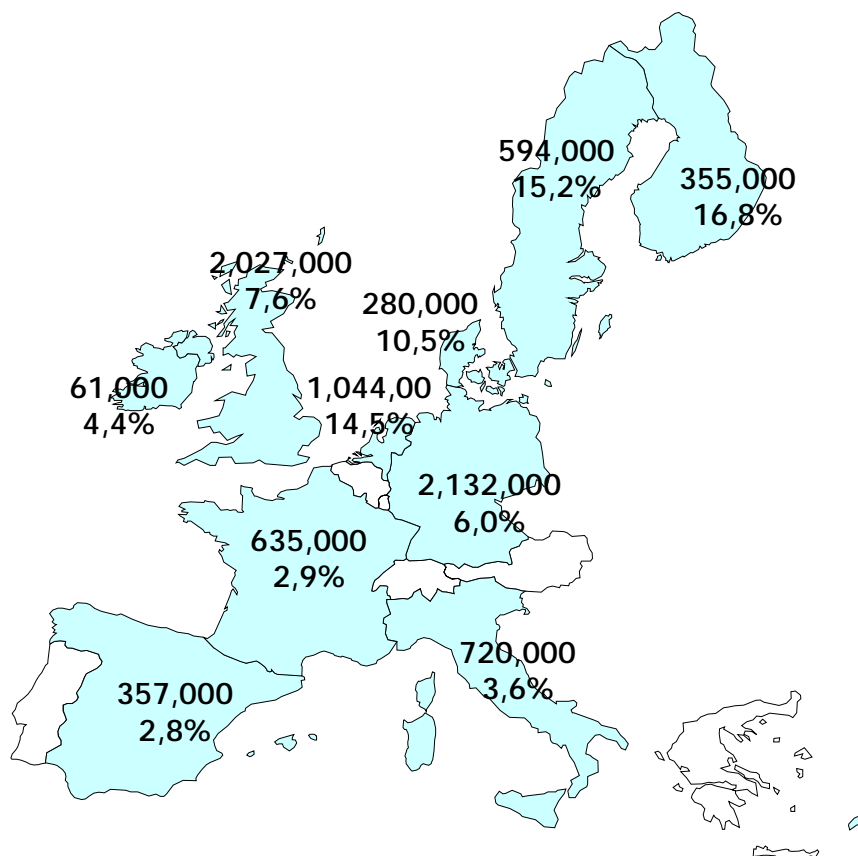
- work at least 10 hours per week away from home and from main place of work, e.g. on business trips, in the field, travelling or on customer's premises;
- use online computer connections when doing so.

Self-employed teleworkers in SOHOs are those who

- are self-employed or effectively self-employed (e.g. persons employed by own company or employed by organisation they have considerable managing power over)
- their main place of work is at home or they claim not to have a main place of work
- use advanced ICT for communicating with clients and/or (other) business partners

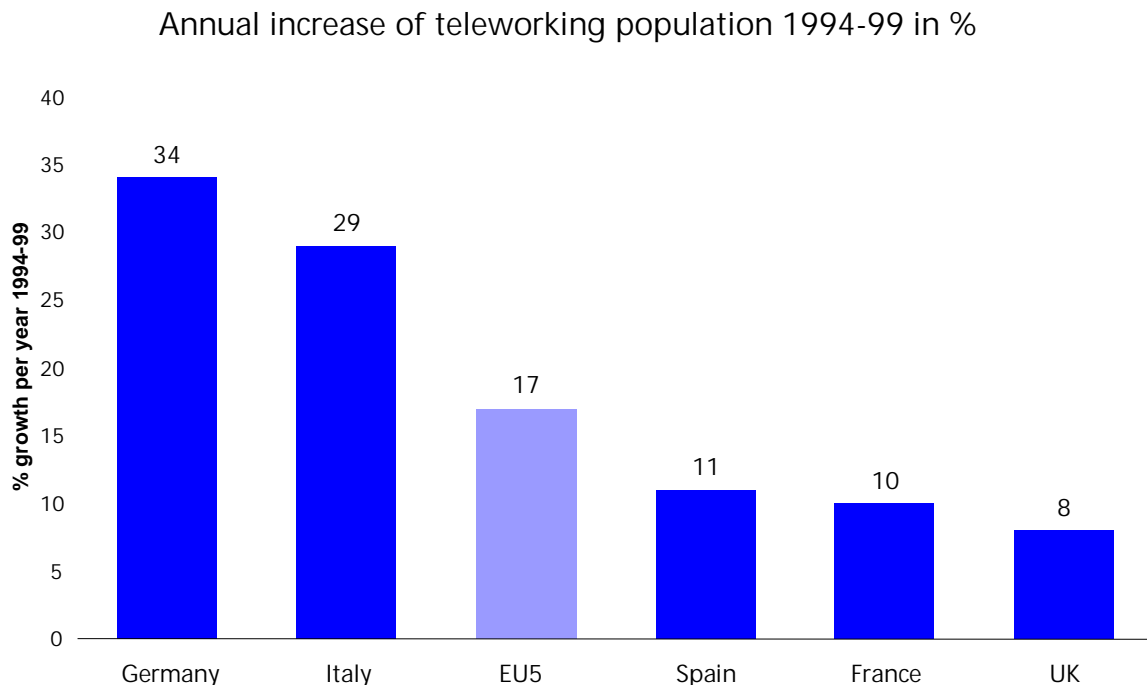
	Teleworkers	supplementary teleworkers	total incl. supplementary
Denmark	176,000	104,000	280,000
Finland	229,000	126,000	355,000
France	499,000	136,000	635,000
Germany	1,562,000	570,000	2,132,000
Ireland	26,000	35,000	61,000
Italy	584,000	135,000	720,000
Netherlands	593,000	451,000	1,044,000
Spain	259,000	97,000	357,000
Sweden	313,000	282,000	594,000
UK	1,273,000	754,000	2,027,000
Total EU 10	5,515,000	2,690,000	8,205,000
Total EU 15	6,049,000	2,960,000	9,009,000
			© empirica 1999

Number of Teleworkers in Europe 1999
(absolute figures and percentage of labour force)



The most significant and highest growth rates for telework penetration from 1994 to 1999 were found in Germany. This variation in penetration across Europe is the result of fairly recent trends. Some ECATT partners have access to comparable figures from 1994 and further back for 5 countries, and these show how the growth of teleworking has differed over that period, from a modest 8% in the UK - starting from a leading position in 1994 -

to a boom in Germany with an average annual growth rate of 34% over the 5 year period. The average annual growth in the number of teleworkers from 1994 to 1999 was 17%. There are no comparable figures available for the Netherlands but in research from van Reisen estimates of number of teleworkers in 1995 vary between 375.000 and 470.000. So the average annual growth for the Netherlands is about 10%.



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Source: Reisen, A.A.J. van ; Ruim baan door telewerken; effecten van flexibele werkvormen op ruimtelijke ordening en mobiliteit als gevolg van veranderend tijd- en ruimtegedrag. Nederlandse Geografische Studies, 1997. [Clearing the way through telework; implications of flexible workforms for spatial organisation and transportation as a consequence of changes in the time-space behaviour. Netherlands Geographical Studies, 1997]

3.3.2 Interest in and potential of telework

2/3 of the jobs in Europe can be carried out by means of telework

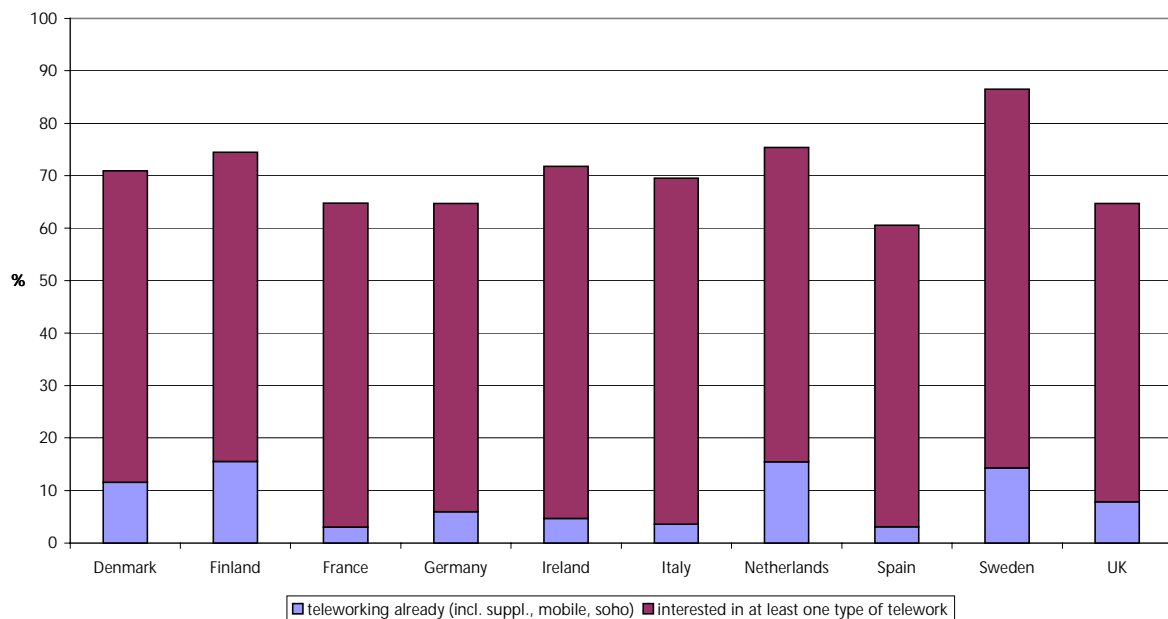
The 'teleworkability' of jobs is very high. According to the survey results, 65% of jobs lend themselves to teleworking. In other words, the employee works a minimum of 6 hours a week in an office job, or spend at least 6 hours a week carrying out tasks at a desk, or at least 6 hours a week using a computer. In the Netherlands the level of 'teleworkability' is almost 75%.

A large number of individuals is interested in telework. Figures have even increased over the past five years. Interest from decision makers in companies is at a lower level. However, the potential for further rapid growth of telework is unlimited.

Interest in telework among the workforce is extremely high. 75% of the workforce in the Netherlands as well as in Europe as a whole indicates an interest in practising this new form of work organisation. Compared to the figures from 1994, the average growth in interest in Europe is around 1/3.

Overall practice and interest in telework in % of workforce			
	Teleworking already (incl. suppl.)	Interest in at least one type of Telework	Total (teleworking already or interested)
Denmark	11.58	59.35	70.93
Finland	15.52	58.97	74.48
France	3.04	61.74	64.78
Germany	5.99	58.76	64.74
Ireland	4.70	67.10	71.80
Italy	3.56	65.92	69.49
Netherlands	15.49	59.86	75.35
Spain	3.10	57.46	60.56
Sweden	14.29	72.18	86.48
UK	7.81	56.94	64.75
Total Sample	7.76	61.26	69.02
			© empirica 1999

**Interest and Practice in Telework overall:
In % of Workforce**



As far as the interest of decision makers in establishments is concerned, 37% have expressed an interest. Compared to 1994, interest has declined slightly. However, more than half of those companies already active in teleworking are interested in expanding it. A significant extent of growth in teleworking is expected to take place through the expansion of existing schemes.

3.3.3 Characteristics of telework and teleworkers

Telework is mainly a male phenomenon and mainly practised by qualified and highly qualified professionals. The self-employed are more widespread among teleworkers than among 'normal' workers.

The average age of the European teleworker is 40. In the Netherlands, the average age is slightly lower at 38. The extremes are Denmark (37) and Sweden (48). 30% of the European teleworkers are self-employed, i.e. a higher percentage of teleworkers is self-employed compared to those working as 'normal' workers in the labour market (17%).

Telework has developed into a form of work organisation for qualified and highly qualified professions.

As already seen in the results of the General Population Survey, teleworkers are mainly professionals and even managers. There is a clear domination by qualified tasks. This disproves the old preconception of the eighties that telework is mainly a form of work organisation for less qualified females.

Telework is an urban phenomenon.

In spite of the large number of activities and support programmes to bring teleworking to rural regions, it still is an urban phenomenon. It is mainly being practised in urban and suburban regions.

The majority of Dutch teleworking schemes has been set up recently.

Although the implementation of teleworking in the Netherlands started in the early nineties, larger scale implementation took place rather recently. 54% of the teleworking schemes in the Netherlands have been set up during the past two years.

In those countries with recent support and stimulation programmes for telework, a more rapid increase in telework diffusion and penetration can be observed.

The highest dynamics can be found in those countries with recent support and stimulation programmes for telework. The lowest growth rates are seen in countries such as the UK and France, which terminated their support programmes some time ago.

Years since beginning telework in % of establishments practising telework 1999								
	less than 1 year	1-2 years	3-4 years	5-10 years	>10 years	don't know	N/A	total
Denmark	7.50	38.63	16.28	24.99	10.31	1.77	0.52	100.0
Finland	8.82	17.66	17.38	43.08	8.99		4.07	100.0
France	15.00	28.15	19.45	23.04	10.33	0.98	3.04	100.0
Germany	5.10	48.88	17.54	13.93	7.80	3.59	3.16	100.0
Ireland	4.83	35.54	20.41	26.32	8.74	3.88	0.28	100.0
Italy	39.07	35.77	13.15	3.03		8.98		100.0
Netherlands	10.94	42.97	21.09	19.53	1.56	2.34	1.56	100.0
Spain	14.07	50.94	11.51	13.24	1.45	6.20	2.59	100.0
Sweden	3.76	28.71	23.26	30.59	5.65	8.04		100.0
UK	4.79	37.28	20.36	21.36	7.22	8.99		100.0
Total	8.99	35.34	18.75	24.10	6.98	4.43	1.42	100.0
EU10	9.50	38.50	18.70	19.70	6.70	5.40	1.50	100.0
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3.3.4 Telework practise by establishments

1/3 of the Dutch establishments already practise some form telework, which is more or less equal to the European average

Establishments with telework as a % of establishments in Europe 1999				
	supplementary excluded		supplementary included	
	%	Ranking	%	ranking
Denmark	47.16	2	57.88	3
Finland	48.16	1	59.33	2
France	31.69	7	35.00	7
Germany	25.45	8	29.90	8
Ireland	32.60	6	39.09	6
Italy	15.25	10	17.21	10
Netherlands	35.67	5	46.00	5
Spain	17.59	9	20.02	9
Sweden	43.25	4	61.65	1
UK	43.47	3	54.98	4
Total	32.45		39.74	
EU 10	29.70		35.80	
© empirica 1999				

Almost all European establishments with more than 1,000 employees practise telework. In the Netherlands the figure is around 3/4. However, the figures are

significantly lower for SMEs.

Virtually all of the very large establishments practise telework, while the smaller ones display much more cautious behaviour. Only 15% of companies with up to 10 employees and 25% with 10-50 employees practise telework. The corresponding figures for the Netherlands are respectively higher at 19% and equal at 25%. Only Germany, Spain and Italy have lower figures in this category.

Supplementary telework, i.e. working from home for less than a full day per week using ICT, has become widespread in Europe.

Supplementary telework has become very popular and widespread in Europe as a new way of working with ¼ of all establishments already practising it. In the Netherlands, the figure is 1/3, whereas in the Scandinavian countries almost every other establishment already employs individuals practising supplementary telework.

Establishments with supplementary telework in % of establishments in Europe 1999	
Denmark	46.12
Finland	43.51
France	14.51
Germany	15.79
Ireland	26.99
Italy	6.18
Netherlands	33.00
Spain	9.71
Sweden	48.56
UK	39.83
Total	25.98
EU10	21.40
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Telework projects are still rather small in size.

The size of teleworking projects is mostly between 1 and 9 teleworker per establishment. Only the leading countries have a larger and more notable proportion of establishments employing larger numbers of teleworkers. For instance, 6% of the Danish establishments employ more than 100 teleworkers each, while in Sweden, Finland and the UK the figure is already more than 4% and in the Netherlands at a more average level of 1.7%.

Number of teleworkers (incl. supplementary teleworkers) in % of establishments 1999									
	0	1-9	10-19	20-49	50-99	100+	don't know	N/A	total
Denmark	50.55	21.69	8.89	5.91	5.82	5.80	1.34		100.0
Finland	54.62	25.62	4.38	5.31	2.00	3.47	4.61		100.0
France	78.51	11.61	3.93	1.82	1.81	0.80	1.26	0.27	100.0
Germany	79.03	11.62	2.82	2.88	0.99	0.40	1.79	0.48	100.0
Ireland	69.75	22.16	2.27	1.71	1.48	0.14	2.48		100.0
Italy	91.57	5.97	0.46	0.83		0.07	0.81	0.28	100.0
Netherlands	62.33	20.33	5.00	6.00	3.00	1.67	1.33	0.33	100.0
Spain	86.60	6.83	1.38	1.37	1.08	1.17	1.36	0.20	100.0
Sweden	43.91	32.52	6.27	5.17	3.35	4.28	4.51		100.0
UK	56.27	19.14	7.28	5.82	2.95	4.05	4.43	0.06	100.0
Total	69.75	16.29	4.04	3.41	2.07	1.99	2.27	0.18	100.0
EU10	74.00	13.40	3.80	3.20	1.70	1.50	2.10	0.30	100.0
© empirica 1999									

More than half of the establishments practising telework are interested in and plan an expansion of their teleworking schemes.

European organisations appear to be very satisfied with their teleworking schemes, otherwise these high figures would not have emerged. Also, Dutch establishments seem to have gained positive experiences from telework as almost 2/3 of them plan to expand their teleworking schemes. It is not unlikely that strong growth in teleworking will occur largely as a result of expansions of current schemes in the near future.

Interest in expanding telework in % of establishments practising telework 1999					
	permanent	alternating	supplementary	exclusive self employed	non-exclusive self employed
Denmark	66.87	65.87	66.24	62.76	45.83
Finland	60.48	41.44	51.18	65.93	57.94
France	16.84	47.15	36.77	23.78	33.67
Germany	83.07	63.13	64.37	58.15	54.73
Ireland	31.76	57.40	45.48	52.86	82.44
Italy	59.71	34.70	39.95	63.63	38.72
Netherlands	40.00	58.33	49.49	33.33	34.78
Spain		56.15	48.90	24.68	59.87
Sweden	54.97	55.68	47.11	22.83	46.85
UK	59.05	44.74	43.71	34.79	40.27
Total	54.78	53.93	50.45	44.30	48.44
EU10	58.70	52.70	49.00	40.20	44.20
© empirica 1999					

3.3.5 Barriers to Telework

Data security and lack of management skills predominate the barriers to telework. However, many establishments have identified telework as a means of increasing competitiveness.

Data security issues are the number one constraining factor to the implementation of telework, followed by the issues encountered in the management of teleworkers by their superiors. In addition, quite a few organisations still have doubts as to the productivity of teleworkers and the sufficient quality of their work results. Problems with trade unions and anticipated resistance from the workforce are negligible. Past problems such as those in the area of teleworker access to central computers, telecommunications and the related costs have become almost negligible and only rank seventh in the list of barriers. Factors that have contributed to this include rapid developments in the area of E-mail, Internet and intranet over the five years since the last survey was carried out. The situation in the Netherlands differs only slightly from the European one. However it is striking that almost 60% of the interviewees are concerned with the productivity/work quality of teleworkers and give this as the major barrier starting telework. A possible explanation for this is that Dutch managers are afraid that employees that are out of sight are less productive. Though this is changing, most managers are not used to control on output. Control on presence is still the most common managing method.

Barriers to telework in % of establishments 1999										
	Insufficient knowledge by managers	Expenses	Productivity/work quality	Difficulties managing teleworkers	Problems organising communication	Health, safety, insurance, legal problems	Data security problems	Lack of pressure for change	Lack of interest by employees	Resistance from trade unions
Denmark	45.61	46.33	38.22	36.01	36.59	30.34	51.47	31.76	33.46	15.53
Finland	44.45	38.25	39.01	40.73	34.60	22.48	52.96	45.18	23.14	12.34
France	60.69	55.81	66.94	66.92	62.92	52.96	77.12	60.97	50.37	47.44
Germany	37.93	42.26	42.00	41.83	34.72	27.83	52.53	50.11	40.35	13.68
Ireland	68.11	58.26	66.94	66.18	54.63	49.97	63.99	52.55	33.65	25.28
Italy	62.77	39.93	51.94	48.97	41.42	35.10	58.35	42.30	26.18	31.07
Netherlands	51.00	32.67	59.33	50.00	42.33	38.33	54.33	41.00	23.00	18.67
Spain	74.43	65.02	69.70	65.58	59.46	54.18	73.38	57.53	45.70	39.50
Sweden	55.28	47.01	52.75	49.60	37.48	44.64	67.65	39.61	37.15	26.65
UK	55.16	52.38	58.58	58.93	45.78	45.26	61.16	49.19	31.01	15.40

Total	56.24	48.72	55.28	53.40	45.93	40.82	61.96	48.08	35.39	25.59
EU 10	54.1	48.1	54.9	53.5	45.7	40.3	61.8	50.0	37.1	25.4

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3.3.6 Telework potential, trends, prognosis

Telework will continue to take off and gradually become a 'normal' way of working for many office workers.

Given the fact that an average of 60% of the workforce and more than 30% of decision makers in establishments in Europe express an interest in telework or already practise telework, the assumption can be drawn that there is a high potential for a further (and even more) rapid uptake of telework in the coming years. These figures do not include mobile teleworkers and supplementary teleworkers. Bearing this in mind, the potential will be even higher. There is no doubt that the objective of 10 million teleworkers by the year 2000 will be achievable.

Interest (practice included) in telework in Europe 1999 (excluding mobile telework and supplementary telework)		
	in % of establishments Decision Maker Survey	in % of workforce General Population Survey
Denmark	48.65	64.7
Finland	55.11	70.4
France	24.86	58.9
Germany	30.59	56.5
Ireland	24.99	62.7
Italy	14.25	62.2
Netherlands	41.00	64.4
Spain	18.98	50.7
Sweden	41.96	74.8
UK	34.98	58.7
Total	31.52	61.4
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3.3.7 Summary

Europe is in a telework boom, experiencing enormous telework growth rates over the past 5 years. Almost all large organisations are already practising telework, and the smaller ones are following similar routes. Finland, the Netherlands, Sweden, Denmark and the UK are the leading countries in terms of telework penetration. All of these countries achieve high penetration rates, up to almost 11% of the workforce in Finland, and 8.25% for the Netherlands (supplementary teleworkers not included).

Interestingly, telework has developed into a mode of working for qualified and highly qualified professionals throughout Europe.

Telework potential, which is the likelihood of the continuation of telework growth, is high given the fact that both the population and decision makers in their establishments express a high level of interest in and consideration of the option of telework. The lower levels of interest among decision makers in companies can be explained by the fact that in 1994, when telework was not very popular, it was easy to express an indifferent interest in telework, whereas today, telework has become a very concrete topic and decision makers have a much better understanding of what it entails and the effort and problems associated with its implementation. It is against this background that they now have begun to take a more differentiated approach and become slightly more reluctant in readily expressing a unanimous interest.

Telework growth can be expected through the expansion of existing schemes as well as newcomers from all sectors and companies of all sizes. In addition, developments taking place in the area of supplementary teleworking should be monitored closely. Many of these individuals will become 'real' teleworkers in the near future, however, there will also be a strong parallel growth in supplementary telework.

Many problems and barriers associated with telework have been successfully eliminated over the last five years. For instance, barriers such as teleworker access to central

computers, telecommunications and the related costs have become almost negligible. Contributing factors to this include rapid developments in the area of E-mail, Internet and intranet in the five years since the last survey was carried out. Problems with trade unions and the anticipated resistance from the workforce are also negligible. With the major exception of Germany, conservative attitudes towards telework are declining and a much more open minded approach towards innovative forms of work organisation as a means of increasing competitiveness can be observed.

However, data security issues rank as the number one constraining factor to telework implementation, followed by the problems associated with the management of teleworkers by their superiors. In addition, quite a few organisations still have doubts as to the productivity of teleworkers and the sufficient quality of their work results. It is now high time to develop (and better promote) both technological and organisational solutions with high usability for ensuring data security and to implement these developments in organisations.

However, changing managerial attitudes and behaviours will be much more difficult. As is the case for any other implementation of flexibility into our organisations and the workforce, the success depends largely on how we manage to solve this problem.

4. Conclusions

4.1 Telework

- Telework is booming in Europe: diffusion and penetration have grown significantly over the past 5 years.
- The Dutch workforce finds itself in a front-runner position, following only behind Finland.
- Telework is a widespread reality in the country. Besides the multitude of recently introduced telework projects, there is a visible trend of steady growth in the number of supplementary teleworkers and informal teleworking.
- Growth rates for the coming years indicate the continuation of a sharp increase in telework in all European countries.
- The Dutch government has stopped investing in isolated telework awareness-raising and funding activities. Over the last 5 years, there has been a shift from approaching telework as a mobility issue towards a more integrated approach of teleworking towards operational process innovation, which has brought the net asset value for organisations themselves to the forefront.
- The application of teleworking and new ways of working is now considered more within the framework of a general flexibilisation, bringing it under the umbrella of information society just as e-commerce.

4.2 Electronic Commerce

- The Netherlands is well-equipped with regard to information and communication technology and has one of the leading if not the best telecommunications infrastructures in Europe.
- Dutch households are among the European front-runners when it comes to the use of E-mail, the Internet and other online services
- Dutch establishments are not in a front-runner position, although they are still above the European average when it comes to the use of E-mail, the Internet and other online services.
- The Netherlands does not rank number one with regard to the uptake of Electronic commerce uptake in the business to consumer area. The Dutch and Europeans in general are cautious when it comes to online shopping. Contrary to other European countries, the Dutch do recognise the need for it.
- However, growth rates show some signs of (slow) change.
- A striking feature is the fact that many Dutch establishments do not enable and/or allow the majority of their employees to use the Internet or E-mail freely. Dutch companies appear to exclude their employees out of a fear of a decline in productivity as a consequence of misuse of the Internet and E-mail.
- Large companies have jumped on the Internet and electronic commerce bandwagon. They seem to be well prepared for the information age. SMEs are less well prepared and will have a hard time. This will apply particularly to those with up to 10 employees: only 2/5 of them use E-mail, and 1/3 the Internet
- Dutch establishments have identified the advantages associated with offering information and having a presence on the Internet and have started to take the appropriate actions
- The Netherlands is at a risk of lagging behind in the area of joint processes and data exchange between suppliers and customers (the business-to-business area). In spite of having nearly the highest growth figures in Europe, the Netherlands still ranks in the back line.

- Electronic commerce has also become one of the key topics in the media and press in the Netherlands. It has also found its way into government policy quite early on.
- The collective 'Electronic Commerce' action programme and the information society initiative Digitale Delta, were launched in 1998 and 1999 respectively, partly in order to raise awareness, but even more so as preconditional measures. These have contributed to an increase in public discussion on this topic and have enabled multiplier organisations to familiarise themselves with the issues surrounding electronic commerce in order to better advise their members on the development and implementation of suitable electronic commerce strategies
- Consulting initiatives like Sp.OED have an impact on the further spread and development of electronic commerce in the Netherlands. The planned evaluation of the Sp.OED initiative in 2001 could shed more light on this.
- As a competence centre, ECP has an impact on the further spread and development of electronic commerce in the Netherlands.

5. Recommendations

5.1 Raising awareness

It is recommended that the multitude of awareness-raising activities be continued and completed at all levels, particularly those aimed at familiarising multipliers with the topics of telework and new ways of working as well as electronic commerce to enable them to better advise their members. However, broadening of the spectrum of telework should continue and telework should be used as an example of upcoming changes in the ways we work, i.e. as just one facet of new ways of working, while we introduce and prepare the industry and the general population for the different changes and newly emerging ways of working apart from telework.

With respect to telework, there does not appear to be a need for further implementation guides addressed to organisations given the fact that many of these guides are already available on the market either for free or at a low cost in paperback format, or at a higher cost for comprehensive and sophisticated guides. What is required in organisations is an integrated approach to teleworking as a more general flexibilisation issue, which also includes operational process innovation and office innovation. Turning around the attitudes of (middle) management as a transformational issue also requires attention. Essentially, there is already enough focus on this issue in the existing literature, however this topic often requires more attention in the (implementation) projects themselves. A technical approach to teleworking is to blame for this.

This type of problems also occur in the introduction of e-commerce within companies. Issues concerning the imbedding in the operational processes to be changed, and also security issues are comparable to those of teleworking. Because of these parallels, it is recommended that the history of the introduction of teleworking be placed alongside the introduction of e-commerce. For a number of comparable organisational insights concerning the introduction of teleworking are already much more developed than those relating to e-commerce. The situation may be reversed for the solution to security problems. By using and combining the knowledge gained through the introduction of teleworking in the introduction of e-commerce activities within organisations and vice versa, developments in both areas may be accelerated.

One of the challenges for the Dutch educational system will be to ensure a sufficient number of qualified teachers and advisors to train pupils and other target groups (e.g. senior citizens) on making the best possible use of ICT in general and the Internet in particular. Because there is likely to be a shortage of qualified trainers, the government has already started an initiative in this direction.

5.2 Government policies in relation to European policies

The Dutch government has already had research conducted on its position compared to surrounding countries and has taken the appropriate actions and incentive measures. The ECATT findings do not give any cause to expand or supplement this already extensive package of measures which rests on five cornerstones. However, the increasing internationalisation is a point for attention. The implementation of the Sp.OED incentive programme has primarily stimulated the market demand among internationally oriented companies towards European co-operation in the area of e-commerce, for example with sister organisations or by starting similar incentive programmes in other European countries. The areas of attention for international co-operation include tax, laws and

regulations and import and export opportunities.

5.3 Globalisation

In spite of ICT applications, globalisation is increasing and viewing developments in a global context is becoming more and more important. The Netherlands' position compared to Europe is more meaningful when it is related to countries like the United States and Japan. The work package case studies, which is another component of the ECATT study, provides the initial impetus for these comparisons using case studies from the US and Japan as references. However, the Interview surveys underlying this country report could not be carried out in the US and Japan, meaning that the comparison with these areas is not included here. In order to gain better insight into Europe's position versus America and the Asian countries, a follow-up study is recommended.

5.4 Telecommunications policy and pricing

The liberalisation of telecommunications in the Netherlands is advanced and must continue to develop. Particularly the market developments in the Netherlands over the past few years have resulted in drastic price reductions, which strongly benefit both business and private customers. It is important to maintain the achieved level of market mechanism, particularly during this growth phase of the market for Internet access. The government oversees this and must continue to do so. Currently there are no signs of an increase in governmental intervention being needed in this area.

Although the Netherlands has a very dense cable network which can potentially be used as a fully fledged communications infrastructure, and in spite of the initiative by a number of Dutch cable companies to make the cable network available for national telephone and Internet services, little use has been made of this to date. Nevertheless, this could be a possible solution to the lag in (expansion of) infrastructural capacity compared to the rate at which the demand capacity among business and private users is increasing, particularly through the explosive increase in Internet and mobile traffic.

Likewise, another solution may lie in the development and application of innovations to make better use of the existing infrastructure. In principle, there is no reason for extra actions in addition to the government's action lines arising from the Digital Delta. If capacity bottlenecks persist in the long term, it is advisable that the government take additional incentive measures to realise technical innovations to increase the capacity of the existing infrastructure.

6. Annex

6.1 Projects and Initiatives in THE NETHERLANDS on TELEWORK and NEW WAYS OF WORKING

The projects below illustrate the initiatives in the Netherlands in the area of teleworking and new ways of working. This is not a complete summary.

<i>Description and objectives</i>	<i>Status/impact/achievements/results</i>	<i>evaluation/assessment</i>
The ' Stichting Nederlands Telewerkforum ' is the successor to the 'Platform Telewerken Nederland'. Its objective is to bring the opportunities and advantages of teleworking to the attention of governments, employers and employees, in order to stimulate the implementation of teleworking in the Netherlands. Participants in the forum are the Ministry of Transport and Public Works and providers of products and services in the area of telework. Each year the TF organises the Dutch telework week, highlighted by the presentation of the Telework Award.	The website (www.Telewerkforum.nl) containing an extensive database is consulted frequently.	The 'Telewerkforum' mainly fulfils an informative role and in that sense meets its objectives.
The ' Interdepartementaal haalbaarheidsonderzoek werkprocesinnovatie ' which was conducted in 1998 and 1999, studied the possibilities of operational process innovation at 8 departments (http://www.minvenw.nl/projects/ihv). This study was financed by the 'Nationaal ActieProgramma elektronische snelwegen', a subsidy scheme for projects that contribute to the stimulation of ICT use.	Following the positive results of the study, a number of proposals are being worked out in which operational process innovation is a key issue in primary policy.	Although this study was based on two other motives as well as mobility motives, operational process innovation will be applied in the primary policy of the follow-up to the project. This illustrates the launched shift in government policy.
The essence of the Fileverduunningsplan [Traffic Jam Reduction Plan], an initiative of Media Plaza was to enable 25,000 people who currently commute by car between the cities of Amsterdam, Utrecht and The Hague to work at home during the morning rush-hour in exchange for a rapid Internet connection and a multimedia PC. They cannot step into their cars until after 09.30 hours. This should reduce the usual morning rush-hour on the A4, A2 and A12 motorways to its level during a holiday period. The total costs are estimated at NLG 450 million, of which 250 million for the government and 200 million for the	The 'TelewerkForum' had a feasibility study carried out for Media Plaza. This study indicates that it is a realistic objective to enable 10,000 employees to shift to more flexibility in their work in the geographical triangle of Amsterdam-Utrecht-The Hague in a few years. The expected contribution by the State government is not NLG 250 million, but 60 million. A 4 year implementation period is recommended.	The study indicates that past figures do not demonstrate any reduction in the traffic jam problem in the triangle, but this does provide an impulse to a social trend which is expected to lead to many more people avoiding the traffic jams by working at home during the rush-hour in the foreseeable future. Currently, Transport & Public Works has not yet given any concrete support to the implementation of this plan. The organisational and management aspects are important issues in the implementation of the plan.

<i>Description and objectives</i>	<i>Status/impact/achievements/results</i>	<i>evaluation/assessment</i>
business community.	The Fileverdunningsplan was nominated for the European Telework Award in 1999.	
The Ministry of Social Affairs and Employment has revealed initiatives within the framework of the ' Stimuleringsmaatregel Dagindeling ' under the motto 'Our society is ready for new agreements'. These measures include a subsidy scheme for experiments with other forms of timetable scheduling to enable people to better combine work and care. The experiments can be set up by governments, companies and public organisations.	A total of NLG 60 million is available for the incentive measure up to 2002. Teleworking and other new ways of working play a central role in a number of submitted projects.	These initiatives contribute to the further orientation of new ways of working.
An interdepartmental work group (Economic Affairs, Housing, Regional Development and the Environment, Transport and Public Works, Finance, and Social Affairs and Employment) is studying the possibilities of an 'availability scenario' within the framework of the ' Actieplan Emancipatietaakstellingen Departementen '. This entails that employees must be available but can carry out some or all of their work elsewhere. This scenario is an alternative to the ever dominant 'presence scenario', in which employees are expected to spend their entire working time at the workplace. The availability scenario is intended to enable employees to better combine their jobs with their care responsibilities. Teleworking with supportive information and communication technology plays an important role in this. Besides simplifying the combination of work and care, teleworking can also push back mobility.	Starting in 2000, a report will be made to parliament each spring concerning the implementation of plans and to provide a total overview of the implementation of departmental plans.	The liberalisation objectives of the government also contribute to a further orientation of new ways of working.
Sp.OED ('Stimuleringsprogramma Opkomst Elektronische Diensten') published a brochure in January 1999 on teleworking for SMEs. This is part of the framework of a large-scale informative programme to accelerate the implementation of new telematics	The brochure describes the advantages and disadvantages and also provides a number of guidelines for the implementation of teleworking, aimed at	SMEs are traditionally less open to telework projects. The folder is not requested very often.

<i>Description and objectives</i>	<i>Status/impact/achievements/results</i>	<i>evaluation/assessment</i>
applications in the Dutch business community.	application and raising awareness.	

6.2 Projects and Initiatives in THE NETHERLANDS on ELECTRONIC COMMERCE

The projects below provide an impression of initiatives in the Netherlands in the areas of e-commerce and the information society. This is not a complete summary.

<i>Description and objectives</i>	<i>Status/impact/achievements/results</i>	<i>evaluation/assessment</i>
In December 1994, the Ministries of Economic Affairs, Transport and Public Works, the Interior and Education, Culture and Science launched the ' Nationaal Actieprogramma Elektronische Snelwegen ' (NAP). This programme expands on priorities established by the European Union to realise the information society. The ambition is to bring the Netherlands into the top group in Europe in the ICT area. The government has made financial resources available to carry out the following lines of action in the NAP: <ul style="list-style-type: none"> • Liberalisation of the telecommunications infrastructure • Liberalisation of the Media Act • definition of a public domain • example projects in the public sector • initiatives in the market sector 	Within the framework of the NAP and its reassessment, a number of projects have been carried out and important results found. The telecom market has been liberalised and new electronic services have also been stimulated: the development of electronic services is 'in the starting blocks. Although the most important condition - access to networks for a large proportion of the population – appears to be much better fulfilled in the Netherlands than in many of the other countries studied in the benchmark, this development is lagging in the possibilities both on the demand side and the supply side.	Through the Action Programme, the government has created the right preconditions needed to develop the information superhighway. The reassessment led to the recognition of a number of bottlenecks and specific actions were taken.
The reassessment of the ' Nationaal Actieprogramma Elektronische Snelwegen ' took place in April 1998.		The Netherlands' position on a number of issues compared to other countries was not realised and further action was required. This resulted in a number of programme clusters for 1998 which elaborate on those of the NAP.
The Ministry of Economic Affairs, in co-operation with the Ministries of the Interior and Kingdom Relations,	The Digital Delta forms the framework within which numerous	It is an integration of government initiatives in the area of Dutch ICT policy. It follows on the bottlenecks

<i>Description and objectives</i>	<i>Status/impact/achievements/results</i>	<i>evaluation/assessment</i>
<p>Finance, Justice, Education, Culture and Science, and Transport and Public Works set up the Digitale Delta, Nederland oNLine in June 1999. It is the successor of the 'Nationaal Actieprogramma Elektronische Snelwegen' (NAP) of 1994. The objective is to maintain the Netherlands' favourable starting position, and to strengthen the weaker areas of the ICT foundation. The government distinguished five cornerstones, which together determine the strength of the ICT foundation for the Netherlands. Actions and activities linked to this include:</p> <ul style="list-style-type: none"> • (tele)communications infrastructure • Knowledge and innovation • Access and skills • Legislation • ICT contribution in the public sector <p>Besides the NLG 70 million a year available for the development of the information superhighways, NLG 1 billion is involved for the period up to 2002.</p>	<p>concrete governmental ICT measures can be placed for a period of three to five years.</p>	<p>established earlier.</p>
<p>'Overheidsloket' [Government counter] 2000 A project co-ordinated by the Ministry of the Interior and Kingdom Relations to implement ICT in the public sector. The objective for the Dutch municipalities is that at least one-quarter of public services take place electronically by 2002.</p>		<p>The urgently imposed objectives have resulted in various projects at the municipal level.</p>
<p>MediaPlaza Media Plaza was founded in 1997, initially for a period of 3 years, until 1 January 2000. It is a demonstration centre for the information superhighway, with the objective of acquainting 100,000 business users with the possibilities offered by technologies such as the Internet. Media Plaza is involved in supporting the integration of the Internet in society and politics. It is an initiative of the four founders: ING Groep, Jaarbeurs Utrecht, the Ministry of Economic Affairs and KPN Telecom. In addition, some 65 other organisations and companies</p>	<p>It has already reached around 60,000 users. Thanks to its success, the participants have decided to continue with a 3 year follow-up process. A new mission has been formulated: "From Thinking to Doing". In practice this means a shift from raising awareness to application.</p>	<p>MediaPlaza is a success. It fulfils some of the need for raising awareness. The new objective concurs with the required actions to stimulate Dutch companies to make use of the information superhighway.</p>

<i>Description and objectives</i>	<i>Status/impact/achievements/results</i>	<i>evaluation/assessment</i>
participate in MediaPlaza. It is a platform for providers, users, the government and knowledge centres.		
<p>Sp.OED ('Stimuleringsprogramma Opkomst Elektronische Diensten') is an initiative of the Ministry of Economic Affairs, VNO-NCW and MKB Nederland and forms a follow-up to the objectives of the 'Nationaal Actieprogramma Elektronische Snelwegen', which is intended to give the Netherlands a leading role in the development of new telematics applications. Sp.OED carries out an incentive programme with the objective of advising 3000 companies within the framework of the information superhighway over a 3 year period, up to the end of 2001. SMEs receive tailor-made advice for free or at a small fee. NLG 14 million is available for this purpose.</p>	<p>Sp.OED carries out projects at SMEs on a large scale. The most inspiring initiatives are described in two publications, for informative purposes for other companies.</p>	<p>The initiative is such a success that there is now a waiting list of SMEs that wish to be advised.</p>
<p>The municipality of The Hague is involved in the implementation of an advanced long-term plan to stimulate the use of new media and promote communication between the municipality, Hague companies and public organisations and inhabitants of the city (www.denhaag.nl). In time, wide-band networks will be used to give all inhabitants access to cultural institutions, employment finding, teleshopping, etc. In addition, the possibility is being created of giving inhabitants online access to municipal information and municipal services, and enabling them to carry out all manner of transactions from home (for example, parking permits) which previously required a visit to city hall. Services such as teleworking, teleshopping and telelearning are integrated in this to some extent.</p>	<p>The first sub-project is currently being implemented. The municipality of The Hague has invested NLG two-and-a-half million to ensure that all of The Hague's inhabitants, companies and social institutions are 'connected' to the Residentie.net [Residence network] (www.residentienet.nl) from April 2000. This is a city-wide electronic network which provides access to the Internet.</p>	<p>It is a progressive initiative developed from a vision on computerisation. The second phase of the plan will create a link to 'Overheidsloket 2000'.</p>
<p>GigaPort is a new project of the government (Economic Affairs, Transport and Public Works and Education and Science) and the business community to stimulate the development of high-quality Internet applications. The GigaPort network</p>	<p>Gigaport is being rigged up.</p>	<p>GigaPort will mainly be useful in its application as a research network.</p>

<i>Description and objectives</i>	<i>Status/impact/achievements/results</i>	<i>evaluation/assessment</i>
will be one-hundred times faster than the current Internet.		
<p>Www.informe.nl is a new information service in the area of the information superhighway, multimedia and electronic commerce. The purpose of Informe is to provide support to Dutch companies that are active in these areas. It is part of Senter, an agency of the Ministry of Economic Affairs. Senter carries out incentive measures for various government authorities in the area of technology, environment, export and international co-operation. Informe is carried out on behalf of the Ministry of Economic Affairs.</p>	The website fulfils a need for general information and offers opportunities for further orientation	The information service is part of the Dutch government's awareness-raising objective. There is no evaluation available yet.
<p>Electronic Commerce Platform Nederland (ECP) is a public-private partnership that was founded in 1998 with the goal of directionally accelerating electronic business for the international competitive position. It is a centre of knowledge with the following objectives:</p> <ul style="list-style-type: none"> • Development and exchange of knowledge • Raising awareness of the importance of and opportunities offered by electronic business • Setting up a facilitating framework, consisting of standards, codes of conduct and the like • Stimulation of projects, education and research in the area of e-commerce. <p>Participants in ECP include platforms such as EDIFORUM (platform in the area of Electronic Data Interchange), NCP (National Chipcard Platform) and EAN Nederland (standards for identification and communication). ECP has around 140 members from the business community, science and other intermediary organisations. The Ministry of Economic Affairs became a member in 1999 and is on the executive committee. It finances ECP on a project basis.</p>	<p>Besides subsidies for information and awareness-raising, this concerns assignments such as the development of:</p> <ul style="list-style-type: none"> a code of conduct for electronic commerce. A quality mark that offers clients and consumers privacy and other guarantees an infrastructure for 'Trusted Third Parties', a kind of 'electronic notaries', which provide correct, safe and reliable message traffic over the information superhighway a uniform delivery module for the electronic exchange of data between companies and institutions such as the Central Bureau of Statistics, tax authorities and LISV. 	The ECP fulfils its objective.
Twinnings	Some 80 small	It is an example of successful public

Description and objectives	Status/impact/achievements/results	evaluation/assessment
<p>The Twinning initiative (1998) consists of funding, a network and facility sharing. It is part of the measures and investments as described in the Digitale Delta. This project finances, supervises and houses new companies in the ICT sector through the Twinning Start Fonds.</p>	<p>companies have already found their way to Twinning.</p>	<p>and private co-operation. The initiative appeals to both young businessmen and providers of capital. The accelerated addition of a third location is currently in the decision-making process.</p>

Sources:

'Actieplan Electronic Commerce', a publication of the Ministry of Economic Affairs, The Hague, March 1998

"Boven NAP", herijking van het 'Nationaal Actieprogramma Elektronische Snelwegen (NAP)', April 1998.

De Digitale Delta, Nederland oNLine, the Ministries of Economic Affairs, the Interior and Kingdom Relations, Finance, Justice, Education, Culture and Science and Transport and Public Works, June 1999.

Op weg naar de informatie-maatschappij, Een internationaal vergelijkend onderzoek naar de positie van de Nederlandse elektronische dienstensector [On the road to the information-society, An international comparative study of the position of the Dutch electronic services sector], a publication of the Ministry of Economic Affairs, The Hague, March 1998.

Voortgangsrapportage Actieprogramma Elektronische Snelwegen [Progress report on the Action Programme for Information superhighways], for the Lower House of the States General, The Hague, 20 December 1995.

Bundeling openbare versies documenten met betrekking tot rapportage door Stratix over schaarste in het telecommunicatienet van KPN Telecom en over het onderzoek naar interconnectie schaarste bij KPN Telecom [Collection public version documents in relation to report by Stratix on shortage in the telecommunicationnet of KPN Telecom and on research on interconnectivity shortage of KPN Telecom], for Opta, The Hague, 10 may 1999.

Reisen, A.A.J. van ; Ruim baan door telewerken; effecten van flexibele werkvormen op ruimtelijke ordening en mobiliteit als gevolg van veranderend tijd- en ruimtegedrag. Nederlandse Geografische Studies, 1997. [Clearing the way through teleworking; implications of flexible workforms for spatial organisation and transportation as a consequence of changes in the time-space behaviour. Netherlands Geographical Studies, 1997]

www.ECP.nl

www.Telewerkforum.nl

www.opta.nl

www.minszw.nl

www.minez.nl

www.minoenw.nl

www.residentienet.nl

www.Mediaplaza.nl

